

## D4.6 Report on the results of cycle 3 demonstrators

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TENCompetence

Building the European Network for Lifelong Competence Development

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### **D4.6 Report on the results of cycle 3 demonstrators. Aggregates internal deliverables ID4.12, ID4.13, ID4.14, ID4.15, ID4.16**

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## Project Deliverable Report

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<b>Abstract (for dissemination)</b>	<p>This document includes the evaluation results of the Cycle 3 real-life evaluation activities. A cross-analysis of the results is compiled in order to present the impact indicators of the project in terms of outreach, learning benefits, organizational implications, and business opportunities identified in these experiences. The evaluation experiences include a revision of the previous pilot implementations and eight business /market-relevant demonstrators conducted in collaboration with external "adopter organizations" from different countries in Europe. These external organizations are Associated Partners or different units within the partners' organizations. The revised pilots and the demonstrators test the tooling achieved along DIP-3. Both pilots and business demonstrators show to provide benefits to socially- and industrially-relevant scenarios. Areas of proven special impact include adult competence development for social inclusion, provision of learning paths to support competence development of distributed professionals, informal competence development, human resources personal competence development, and sharing of competence profiles between organizations to support the mobility of their professionals.</p>		
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# Table of contents

<b>TABLE OF CONTENTS.....</b>	<b>2</b>
<b>1. INTRODUCTION.....</b>	<b>3</b>
1.1 EXECUTIVE SUMMARY OF THE PILOTS AND DEMONSTRATORS .....	4
1.2 IMPACT INDICATORS AND EVALUATION STRATEGY .....	6
1.3 STRUCTURE OF THIS DOCUMENT.....	8
<b>2. IMPACT OF PILOTS AND DEMONSTRATORS IN REACHING LIFELONG LEARNERS .....</b>	<b>9</b>
2.1 RANGE OF GLOBAL DISTRIBUTION .....	10
2.2 RANGE OF APPLICATION DOMAINS.....	12
2.3 RANGE OF COMPETENCES.....	13
<b>3. IMPACT ON PARTICIPANTS.....</b>	<b>15</b>
3.1 WHAT HAS BEEN LEARNED BY THE PARTICIPANTS .....	15
3.2 PARTICIPANTS WHO WOULD LIKE TO CONTINUE .....	17
3.3 APPRECIATION OF THE LEARNING EXPERIENCE .....	19
3.4 COMMUNICATION AND SOCIAL INTERACTION .....	21
3.5 PROGRESS ON USE CASES, TYPE OF COMPETENCE DEVELOPMENT AND FUNCTIONING .....	27
<b>4. IMPACT ON ORGANIZATIONS .....</b>	<b>30</b>
4.1 SIZE OF THE ORGANIZATION AND NUMBER OF PARTICIPANTS INVOLVED .....	30
4.2 RANGE OF TYPES OF ORGANIZATION.....	31
4.3 RANGE OF TYPES OF BUSINESS .....	31
4.4 OBJECTIVES OF THE VARIOUS PILOTS AND BUSINESS DEMONSTRATORS .....	33
4.5 RELATION OF USE CASES TO THE WORKING PROCESSES AND JOB POSITIONS IN THE ORGANIZATION .....	36
4.6 CONTINUATION WITH THE TENCOMPETENCE APPROACH .....	41
4.7 APPRECIATION OF TENCOMPETENCE EXPERIENCES .....	42
4.8 INFLUENCE ON THE PROVIDER .....	43
<b>5. IMPACT ON BUSINESS OPPORTUNITIES.....</b>	<b>45</b>
5.1 BUSINESS MODEL(S) OR CASES SHOWN IN THE DEMONSTRATOR .....	45
5.2 BUSINESS MODEL(S) OR CASE(S) POTENTIALLY POSSIBLE.....	46
5.3 ESTIMATION OF RESOURCES INVESTED IN CARRYING OUT THE DEMONSTRATOR.....	46
5.4 PLANS TO USE TENCOMPETENCE BEYOND NOVEMBER 2009 .....	48
5.5 DECISION TO INSTALL AND CUSTOMIZE THE TOOLING .....	49
5.6 IMPACT FROM THE PERSPECTIVE OF THE IMPLEMENTERS .....	50
<b>6. SUMMARY AND CONCLUSION .....</b>	<b>55</b>
<b>REFERENCES.....</b>	<b>59</b>
<b>APPENDIX 1: IMPACT INDICATORS DATA COLLECTION INSTRUMENT.....</b>	<b>.....</b>
<b>APPENDIX 2: ÀGORA PILOT.....</b>	<b>.....</b>
<b>APPENDIX 4: UNESCO-IHE FMM02 PILOT .....</b>	<b>.....</b>
<b>APPENDIX 5: ICT TEACHER TRAINING PILOT.....</b>	<b>.....</b>
<b>APPENDIX 6: DIGITAL CINEMA PILOT.....</b>	<b>.....</b>
<b>APPENDIX 7: MIZAR MULTIMEDIA BUSINESS DEMONSTRATOR.....</b>	<b>.....</b>
<b>APPENDIX 8: DOBLEVIA BUSINESS DEMONSTRATOR .....</b>	<b>.....</b>
<b>APPENDIX 9: CENTRE OF EXCELLENCE FOR MECHANICAL ENGINEERING OF ALTRAN BUSINESS DEMONSTRATOR .....</b>	<b>.....</b>
<b>APPENDIX 10: EMPOWER LIMBURG BUSINESS DEMONSTRATOR.....</b>	<b>.....</b>
<b>APPENDIX 11: CEDEP BUSINESS DEMONSTRATOR .....</b>	<b>.....</b>
<b>APPENDIX 12: EPIQ ELEC. ASSEMBLY BUSINESS DEMONSTRATOR .....</b>	<b>.....</b>
<b>APPENDIX 13: ELSA BUSINESS DEMONSTRATOR .....</b>	<b>.....</b>
<b>APPENDIX 14: UNIGE BUSINESS DEMONSTRATOR .....</b>	<b>.....</b>
<b>APPENDIX 15: MACMILLAN CANCER SUPPORT BUSINESS DEMONSTRATOR .....</b>	<b>.....</b>



# 1. Introduction

A number of real-life scenarios and corresponding pilot studies have been carried out during the TENCompetence project. These piloting activities have provided effective environments for tools validation and project evaluation. These activities have enabled the project to assess its impact and analyze its benefits and limitations in order to prioritize and build the strategy to be followed in the different (aspects, integration) working lines of the project. The pilot designs matched the three project cycles:

- The first cycle (2007) focused on a 'proof of concept' which provided a first validation of the initial system release. Cycle 1 pilots were framed in two different domains: Digital Cinema and ICT Teacher Training (Moghnieh et al. 2008a; Moghnieh et al. 2008b; Schoonenboom et al., 2008). The first validation assessment results showed that a competence centred approach to learning was beneficial to the learners. The learners using the first-release of the TENCompetence infrastructure felt more in control of their own learning. From the experiences of the pilots conducted in this cycle we also learned that more experiences about didactical, social, and organizational conditions have to be acquired in order to improve the effectiveness and efficiency of the TENCompetence approach. The shift from a course perspective on learning to a focus on competences was a challenge, which required fundamental rethinking of the curricular and educational structures in the context in which the pilots were conducted.
- The pilots carried out in cycle 2 (2008) tested the usability and utility of the tools developed by the project (Hernández-Leo et al., 2009a). Cycle 2 pilots included extensions of the Digital Cinema and ICT Teacher Training pilot (Schoonenboom et al., 2009), and two new pilot scenarios. An UNESCO-IHE Flood Modelling for Water Management pilot was carried out with 90 learners from 47 countries (Popescu et al., 2009a) and the Agora pilot with more than 100 participants addressed the topic of ICT and language competence development for social inclusion (Louys et al., 2009a). These cycle 2 pilots showed that TENCompetence provides usable solutions to real problems in real-life contexts. The UNESCO-IHE pilot represented an industrially-relevant scenario where highly educated professionals participated in the pilot with a job-related motivation. The learners recognized that they learnt with respect to various competence types, appreciated the way of learning provided by the TENCompetence infrastructure and wished to continue to develop these competences further. The Agora pilot provided a socially-relevant scenario where TENCompetence offered various kinds of benefits for adult participants with low educational profiles and an intrinsic motivation to learn. The tools allowed learners to create and control their own learning plans based on their interests and educational background, including informal and non-formal learning experiences. Moreover, the self-assessment, the planning and the self-regulating elements allowed the participants to develop reflective skills.
- The third cycle has focused on pilots and business demonstrators in order to address wider applicability and sustainability of the TENCompetence infrastructure. Continuation of the ICT Teacher Training and Digital Cinema have been supported and special efforts have been devoted to extend the UNESCO-IHE and Agora pilots which in previous cycles showed significant and relevant impact scenarios. The third cycle has also involved the completion of concrete business or market-relevant demonstrators in collaboration with external "adopter organizations". The initial plans for the demonstrators were introduced in deliverable 4.5 (Hernández-Leo, et al., 2009b). Eight business demonstrators have been carried out by associated partners involving pilot groups' representatives of commercial/industrial users in various settings, including the workplace. This document reports on the results and aggregated impact of cycle 3 pilots and demonstrators. Different

publications presenting these results have been published in several scientific and professional forums (Jonoski et al., 2009; Louys et al., 2009b; Nikolova et al., 2009; Santos et al., 2009a; Santos et al., 2009b; Shoikova et al., 2009; Popescu et al., 2009b).

The next section includes a summary of the cycle 3 pilots and business demonstrators. Section 1.2 explains the general evaluation strategy followed in this cycle and presents the impact indicators taken into account when analyzing the aggregated impact of pilots and demonstrators. Finally in this chapter, section 1.3 describes the structure of this deliverable.

## 1.1 Executive summary of the pilots and demonstrators

Table 1.1 summarizes the 5 pilots conducted in the third cycle. Two have been conducted in Spain, two in The Netherlands and one in Bulgaria. The pilots have used the available version of the Personal Competence Manager (PCM, TENCompetence system) at the time of implementing each pilot. All of them have used the Personal Competence Planner tool (PDP) and some of them have also employed other PCM tooling such as the Knowledge Management tooling (LearnWeb, TENTube) and the Liferay portal (see the TENCompetence deliverables from WP9 and WP3 for the descriptions of the tools; brief explanations are also available within the descriptions of the pilots in the appendices).

**Table 1.1. Overview of Cycle 3 pilots**

Pilot	Countries	Short description
AGORA	Spain	The general goal of the Àgora pilot is to test and validate the TENCompetence infrastructure and pedagogical concepts in their ability to support the competence development and lifelong learning of adults in languages and information and communication technologies (ICT), which are key areas in Àgora education. In this sense, Àgora intends to facilitate the inclusion of adults into the active fabric of current society, in which ICT and languages are of the utmost importance in order not to be left out. The first Àgora pilot started in September 2008 and lasted 6 weeks in which Àgora participants had the opportunity to reinforce and improve their competence level in ICT and English language (basic and advanced levels) according to their needs and interests. The second version of the pilot started March, 9th and run for 3 months. It further develops competences related to ICT and English language. In addition, this pilot focuses on the development of competences in Spanish language in order to enable the high numbers of immigrants in the school to take advantage of TENCompetence infrastructure and thus guarantee a broader diversification in the user profiles. <i>Extended description in Appendix 2.</i>
UNESCO-IHE DSS	Worldwide, (offered from The Netherlands)	In this pilot participants develop competences related to the process of designing and developing decision support systems (DSSs) for River Basin Management. This requires competences that can roughly be classified in two categories. The first category of competences is in proper formulation of decision making problems as well as understanding of the appropriate usage of various tools and techniques such as simulation, optimization and multi-criteria analyses. The second category of competencies are required for the actual DSS development, which is usually a computer-based system that integrates data, models and decision support techniques into a decision support environment. This pilot is primarily focused on developing competences that belong to the first category. <i>Extended description in Appendix 3.</i>
UNESCO-IHE FMM	Worldwide, (offered from The Netherlands)	The overall goal of the “Flood Modelling for Management” (FMM) competence development program is to support water professionals in the development of the competences that make them capable of maximizing economic and social well-being in an equitable manner (without compromising the sustainability of their ecosystem) by using catchment, river basin and urban flooding models. FMM second run, in May-July 2009 give the learners the freedom of choosing their learning path. The infrastructure used for this second run of the FMM is the one developed within TENCompetence. The competence development program was offered free

		of charges in exchange for evaluation activities. Yet a basic entrance level to participate in the program was set. Preference is given to applicants from the Nile Basin countries to bring synergy with the activities centred around the parallel pilot component Decision Support Systems. <i>Extended description in Appendix 4.</i>
ICT Teacher Training	Bulgaria	This pilot shows how the TENCompetence framework and approach can be used for the implementation of the innovative and complex training methodology, developed in the frame of the Leonardo project ‘The Innovative Teacher’ (I*Teach). An important issue is that while in the first pilots we trained mostly ICT teachers, now we include teachers from all subjects and levels, as well as to include teaching in schools. <i>Extended description in Appendix 5.</i>
Digital Cinema	Spain	This pilot is a revised version of the Digital Cinema pilot carried out in Cycle 1. Its main goal is to test the TENCompetence infrastructure and pedagogical models in their ability to support competence development of busy professional in the area of Digital Cinema and 3D. The competences supported in this pilot are tool-oriented. In the first pilot the focus was on the Brainstorm software which enables the creation of Virtual Sets. The revised pilot includes competences related to effectively using the new NINOS infrastructure for automatic audiovisual production. <i>Extended description in Appendix 6.</i>

Table 1.2 compiles the summarised descriptions of the eight business demonstrators carried out in cycle 3. Three of them have been conducted in Spain, one in The Netherlands, one in Bulgaria, one in Italy, one in France and one in Germany. Another demonstrator is being carried out in the United Kingdom at the time of writing this deliverable (reported in Appendix 15). The demonstrators have used the functionality of the PCM available at the time of performing each demonstrator and which was perceived as significantly helpful for their context scenarios and objectives. The relevant stakeholders of the external “adopter organizations” have made the ultimate decision when selecting the tooling applied. As a result, each demonstrator has had a particular configuration of the PCM (e.g., whether or not using the PDP, LearnWeb2.0, the Liferay portal or their own organizational portal, etc.)

**Table 1.2. Overview of Cycle 3 business demonstrators**

Pilot	Countries	Short description
Mizar Multimedia	Spain, USA	MIZAR is a <b>content provider SME</b> devoted to educational purposes. Their aim is to extend their business model by also delivering (using TENCompetence) competence development programs. The feasibility of the business model is demonstrated by means of involving an external (client) organization in the USA. <i>Extended description in Appendix 7.</i>
DobleVia	Spain	DobleVia, an <b>SME</b> offering educational, social and cultural services, uses the TENCompetence tools to offer training opportunities for <b>competence development to their employees</b> , who typically have changing job requirements. <i>Extended description in Appendix 8.</i>
CEME of Altran	Spain	The <b>Centre of Excellence for Mechanical Engineering of the Altran</b> company is changing its knowledge and human resources strategies. TENCompetence is an important trigger for this change. Their current efforts has been focused on exploring how to <b>offer the learning plans more appropriate to the engineers</b> depending on their mastered competences and goals. Their other main aim is matching their staff competence profiles with their (upcoming) projects. <i>Extended description in Appendix 9.</i>
Empower Limburg	The Netherlands	Public- and private sector partners from the Limburg region - the Empower Limburg <b>consortium</b> – implement a TENCompetence business demonstrator to <b>improve mobility</b> of middle managers between its <b>partner organizations</b> . The TENCompetence tools have been used together with experimental procedures on how to define shared competence profiles between organizations. <i>Extended description in Appendix 10.</i>

CEDEP	France	INSEAD and CEDEP – the European Centre for Executive Development – applied the TENC Tube in an <b>inter-organizational context</b> composed of a learning network of peers from CEDEP member companies (e.g. L’Oréal, HSBC, Sanofi Aventis, etc.) The focus is on the social network dimension of competence development and management systems and in particular, on how to facilitate more <b>informal ways of knowledge exchange, linking the collective competence-related knowledge and expertise of the community of users</b> , and including knowledge forms such as tacit knowledge, know-how and actual experiences. <i>Extended description in Appendix 11.</i>
EPIQ ELEC. Assembly	Sofia	The EPIQ Electronic Assembly Business Unit EPIQ-2 is a high <b>technology company</b> that needs to get more out of their engineers and specialists. The EPIQ business demonstrator applies TENCompetence to support top and middle management, as well as various professional communities and individuals for improving the processes of <b>competence profiling, performance management and organizational learning enhancement and knowledge management</b> in an enterprise context. <i>Extended description in Appendix 12.</i>
ELSA	Germany	ELSA is part of the ZEW, the Competence Center for Continuous Education of the University of Hannover. They provide <b>support for the deployment of technology and media in the learning practice</b> . ELSA conceptualises a learning environment including <b>LearnWeb 2.0</b> . The system is used by the learners for <b>self-directed learning</b> during a semester. <i>Extended description in Appendix 13.</i>
UniGe	Italy	The Laboratory on “Web Design” at the <b>University of Genoa</b> has the aim of teaching basic principles in web design from the point of view of both programmers and designers. The demonstrator seeks to show whether the use of the TENCompetence tools can facilitate teachers in sharing learning materials, <b>finding and publishing the right contents</b> . <i>Extended description in Appendix 14.</i>

## 1.2 Impact indicators and evaluation strategy

In order to understand the impact of TENCompetence in terms of success areas and uptake of the project, a number of impact indicators have been defined by TENCompetence work package 4. Important indicators are the range of applications for competence centred learning across educational settings, types of learners, organizations, and the business opportunities. Therefore, these are the type of impact indicators considered in the evaluation work package:

- *Impact of pilots and business demonstrators together in reaching lifelong learners*  
These indicators analyze the aggregated number of individuals and organizations reached in the pilots, the number of different user group types, the range of global distribution and application domains, the TENCompetence use cases applied, and the range of competences and competence profiles covered.
- *Impact on participants*  
These indicators have to do with the direct benefits to learners, including the time spent on competence development, the actual learning taken place, a desire of wanting to develop their competences further with the approach proposed in the project, appreciation of the learning resources, control of their own learning, communication and social interaction, relation with current or future job positions, etc.
- *Impact on organizations*  
These indicators consider the types of organizations involved in the demonstrators, the number of participants in relation with the total number of employees (when applies), the type of business in the organization and the relationship with the objective of the

pilot, and the relationship of the use cases applied with the working processes/job positions in the organisation.

- *Impact on business opportunities*

These indicators collect the business cases shown in the pilots and demonstrators as identified in collaboration with work package 9 (Krekels et al., 2009a; Krekels et al., 2009b) and work package 10 (Krekels et al., 2008). The indicators also identify business opportunities of potential success and measure the resources external to the project and the usual activities of the organization that have been invested in carrying out the demonstrators as well as the number of organizations that decide to install the tooling in their own servers or/ and to customize the tools to adapt them better to their organizational processes (styles, integration with existing tooling in the organization, etc.)

The instrument used to collect the data in order to analyze the impact indicators of the business demonstrator is available in **Appendix 1**.

Table 1.3 shows the evaluation procedure applied in cycle 3. The evaluation of the 5 pilots has been performed by the evaluators of WP4<sup>1</sup>. In the case of the business demonstrators the evaluators of WP4 have provided guidelines and the instrument in Appendix 1. The consortium partners facilitating and supporting the external adopter organizations in the implementation of the demonstrator have been in charge of making sure that a detailed evaluation is conducted, helping associate partners with the data collection instruments and the analysis of the data. After having available the data required for each impact indicator type, the evaluators of WP4 have performed a cross-analysis of the indicators in order to provide aggregated impact results.

**Table 1.3. Evaluation procedure carried out in cycle 3**

Pilot / business demonstrator	What	Who	How	When
Agora, Water Management FMM, DSS, ICT Teacher Training, DC pilots	Continuation of the evaluation approach used in cycle 2 (emphasis in the learning benefits) adapted to the new functionalities used	Evaluators of WP4	By means of several data collection instruments	Once the data is available and the pilot has finished
Business demonstrators	Impact indicators particularized for each business demonstrator. The degree of detail in the evaluation may vary depending on the demonstrator.	Consortium partners supporting APs in running the demonstrator (APs can also participate in the evaluation)	By means of several data collection instruments	During and after the demonstrator. Consortium partners together with APs can plan the evaluation as appropriate
Business demonstrators	Aggregated analysis of the impact indicators	Evaluators of WP4	By means of the results provided by consortium partners supporting the external adopter organizations	Once the information is available and the demonstrators have finished

The data collection instruments used in the evaluation of the pilots and demonstrators include questionnaires - see also previous pilot evaluations (Hernández-Leo et al., 2009a) - log files analysis (PCM, Google Analytics), interviews with participants, observations on how

<sup>1</sup> Evaluators of WP4 means the core group in charge of evaluating the pilots: UvA, OUNL, UPF and partially also Logica.

participants use the tools, and documentation provided by implementers and key figures in user organizations.

### **1.3 *Structure of this document***

The remainder of the deliverable is organized as follows. Chapter 2 is devoted to the impact of pilots and business demonstrators together in reaching lifelong learners, while chapter 3 and 4 focus on the impact on individuals and organizations, respectively. Chapter 5 is reserved for analysing the aggregated impact with regard to business opportunities. The summary of the impact indicators and the main conclusions of this report are presented in Chapter 6.

This deliverable includes a series of appendixes. Appendix 1 contains the instrument created to guide consortium- and associated partners in the compilation of the data required to evaluate the indicators. Then appendixes 2 to 14 explain each of the pilot studies and business demonstrators considered in the cross-analysis of evaluation results. The demonstrator being carried out in the United Kingdom at the time of writing this deliverable is reported in Appendix 15 but not considered in the cross-pilot study. Each appendix is structured including a full description of the scenario; the implementation of the experience and a description of PCM tooling used; the specific evaluation methodology applied (with the data collection instruments); the evaluation results; and a discussion of the results.



## 2. Impact of pilots and demonstrators in reaching lifelong learners

TENCompetence has addressed the need to stimulate the European knowledge Economy by providing lifelong learning adapted access to facilities that support the creation, storage, use and exchange of formal and informal knowledge and learning resources. In order to achieve this goal, the project studied the validity and the viability of the project's competence centred approach in real-life pilot implementations in different organisational and international settings. The pilot studies and business demonstrators simultaneously addressed technological and life-long problems of contemporary research.

Within this context two main objectives were targeted by the project. The first objective is to research and develop innovative, standards-based methods and tools for the creation, storage, use and exchange of formal and informal learning activities and units of learning. This includes tools for the (self-) assessment of the learning process and learning outcomes. The second objective is to research and develop innovative methods and technologies for the creation, storage, use and exchange of formal and informal competence development programmes. This includes the assessment of previously required competence levels, navigation support, and the sharing of successful formal and informal learning tracks.

TENCompetence estimated its impact on Europe's knowledge economy at four levels. The direct impact was to explore the approaches to develop a more skilled (and skills aware) workforce. In addition three indirect benefits of the project were expected as key impact factors. Firstly, TENCompetence provides a model of how the pool of inaccessible tacit knowledge in Europe can be turned into transferable competences. This was expected to promote productivity through marketable products. Secondly, the TENCompetence infrastructure will provide support for personalised, just-in-time and just-in-scope competence development, in which learners respond to their present needs. This has been expected to avoid the wasted effort of learning, which is carried out "just-in-case" it might be useful one day. Finally, TENCompetence targeted to apply principles of self-directed learning, self-organisation and communities of practice

This section addresses these impact levels from a macro perspective and seeks to extrapolate the findings of TENCompetence' pilot implementations and business demonstrators to the European dimension. Three questions have to get answered in order to estimate the project's impact.

- Is the competence centred approach suitable for developing the European workforce at a large scale across domains, national systems and cultures?
- Do the approach and the provided tools facilitate a better awareness of existing skills and learning trajectories in different learning settings, namely formal education as well as non-formal and informal learning?
- Can the approach support learners at different competence levels at selecting appropriate learning paths for improving and maintaining their competences?

Answers to these questions will not directly relate to the actual impact on vocational education and training, because the primary objective of TENCompetence is the development of an educational technology infrastructure. Instead, the answers address the variety of applications and people who were involved in the pilots and business demonstrators. This chapter focuses on three aspects of this variety for estimating the project's impact as a whole (see Appendix 1 for the detailed questions bound to these impact indicators type and the rest of Appendixes for each pilot/ demonstrator related data):

1. Range of global distribution,
2. Range of application domains,
3. Range of competence levels

## 2.1 Range of global distribution

The range of global distribution focuses at the relevance of the project's results at the European level (see Table 2.1). This range indicates the impact for bridging lifelong competence development support with a standardized framework across nation states and cultures.

**Table 2.1 Overview of the pilots and business demonstrators in cycle 3**

Name	Type	Scope	Focus
Agora	Pilot	Spain	Competence development for social inclusion
UNESCO FMM	Pilot	Multinational	Further professional competence development
UNESCO DSS	Pilot	Multinational	Professional competence development and community building
ICT TT	Pilot	Bulgaria	Competence development of teaching professionals
Digital Cinema	Pilot	Mainly Spain	Product-oriented competence development
DobleVia	Business Demo	Spain	Organisational HR development
MIZAR	Business Demo	Spain	Self-directed language learning
EPIQ	Business Demo	Bulgaria	Organisational management development
CEDEP	Business Demo	France	Management competence development
Empower Limburg	Business Demo	The Netherlands	Competence re-development and competence sharing
UNIGE	Business Demo	Italy	Initial professional competence development
ELSA	Business Demo	Germany	Knowledge sharing
ALTRAN	Business Demo	Spain	Organisational competence development

The project conducted 5 pilot implementations. Additionally, 8 business demonstrators were conducted (see Table 2.1). **Together the cycle 3 pilots and the business demonstrators reached 625 learners in 42 countries. The total amount of learners involved in piloting and demonstration activities along the whole project duration is of 1035.** Table 2.2 shows the distribution of the participants across the pilots and business demonstrators.

The pilot settings that already had an established community of participants (e.g. Agora) or that offered any form of certification (e.g., UNESCO-IHE FMM and DSS pilots) addressed a larger audience. The number of participants in the demonstrators is also diverse. In the CEDEP and UNIGE demonstrators the organizations were already making business in the area of the demonstrators, and the TENCompetence tools provided them new approaches to add value to their business. This is probably the reason why these demonstrators involved a large number of participants. Other organizations (MIZAR, ELSA, and Empower Limburg) were exploring new potential business opportunities from the provided environment. Some business demonstrators had also the purpose to familiarize the organizations with the new tools and the new concepts of networked competence development in order to realize the internal benefits for the organizations (EPIQ, ALTRAN and DobleVia SME).

The majority of the participants in the pilots and business demonstrators were situated in a national or regional setting. Two of them had a multinational scope (mainly Europe and Africa).



**The pilot studies and the business demonstrators involved 46 organizations.** The majority of pilots and business demonstrators were related to one or two organizations (see Table 2.2). This reflects the two main models of organizations as learning (competence development) providers and internal competence development in organizations. The CEDEP and the Empower Limburg business demonstrator targeted a network of organisations to tackle competence development and employability at a regional and national level.

**Table 2.2 Number of participants and organizations**

Pilot/Business Demonstrator	Learners	Organisations
Agora	138 (100 in the previous pilot)	2
UNESCO FMM	63 (90 in the previous pilot)	1
UNESCO DSS	105	1
ICT TT	32 (More than 200 in the previous pilot)	2
Digital Cinema	3 (20 in the previous pilot)	1
DobleVia	5	1
MIZAR	12	1
EPIQ	28	1
CEDEP	139	25
Empower Limburg	19	8
UNIGE	55	1
ELSA	18	1
ALTRAN	8	1

The business demonstrators were conducted in a range of organisational types and economical backgrounds. The TENCompetence infrastructure has been explored by SME's, by a micro enterprise as well as by large organizations (see Table 2.3). Table 2.3 shows the different types and size of the organizations that participated in the business demonstrators.

**Table 2.3 Types of organizations involved in the business demonstrators**

Business Demonstrator	Type	Size Group
DobleVia	Enterprise	SME
MIZAR	Enterprise	Micro Enterprise (SME)
EPIQ	Industry	Large Enterprise
CEDEP	Consortium of enterprises	Large Organisations
Empower Limburg	Regional Government	Large Organisation
Empower Limburg	Enterprise	Mid-sized organization
Empower Limburg	Association	Mid-sized organization
Empower Limburg	University	Large Organisation
UNIGE	University	Large Organisation
ELSA	University	Large Organisation
ALTRAN	Enterprise	Large Organisation

The distribution of the pilots and the business demonstrators across nation states, educational scope, and organisational types indicates the flexibility and attractiveness of the lifelong competence development approach across national cultures and business sectors in Europe.

## 2.2 Range of application domains

The range of applications domains reached by the project indicates to what extent the project results were applicable in different areas of competence development. The pilots and business demonstrators in TENCompetence's cycle 3 covered the following application areas.

- Technical professional competence development
- Competence development for social integration
- Teacher training/ training the trainers
- Self-directed language learning
- HR development for organisation specific purposes
- Re-employment and mobility between organisations
- Knowledge sharing

This list shows the wide range of applications covered by the TENCompetence approach, including not only vocational education and training activities but also new application domains such as organisation specific HR development in small and medium enterprises, or in social integration activities.

Table 2.4 indicates that the competence development approach appears also to be attractive to link educational activities to settings such as the workplace learning and learning at home and not only in educational institutions. Moreover, it is remarkable that the business demonstrators that were focusing on tailored organisational learning were focussing entirely on the workplace as the location for learning (DobleVia, EPIQ and ALTRAN). Furthermore, Table 2.4 shows an almost equal distribution of applications in different educational settings, such as formal education, as well as in non-formal and informal learning.

**Table 2.4 Learning settings**

Pilot/Business Demonstrator	Learning Type	Workplace	Home	Educational Institution
Agora	Non-formal		X	X
UNESCO FMM	Formal	X	X	
UNESCO DSS	Non-formal	X	X	
ICT TT	Formal		X	X
Digital Cinema	Informal	X	X	
DobleVia	Informal	X	X	
MIZAR	Non-formal		X	
EPIQ	Informal	X		
CEDEP	Non-formal	X		X
Empower Limburg	Non-formal	X		X
UNIGE	Formal		X	X
ELSA	Formal		X	X
ALTRAN	Informal	X		

In relation to the application and the learning setting it is relevant to understand the relation of the 7 core use-cases of the project with the setting and the focus of the pilots and business demonstrators. The 7 core use-cases of TENCompetence were as following.

- Improving a specific competence for the current job (UC1)
- Improving a specific competence for a new job (UC2)
- Explore the community/learning network (UC3)
- Keeping up-to-date (UC4)
- Assessing the personal competences (UC5)
- Reflecting on competences (UC6)

- Receiving support for a non-trivial problem (UC7)

Table 2.5 shows which of the 7 core use-cases were particularly addressed by the individual pilots and business demonstrators. It shows that for most of the pilots and business demonstrators addressed more than two use-cases. This indicates the connectedness and the relevance of the use-cases for lifelong learning in practice. Particularly the pilots and business demonstrators in non-formal and informal learning settings focused on a broad range of use cases.

**Table 2.5 Demonstrators and TENCompetence use-cases**

Pilot/Business Demonstrator	UC1	UC2	UC3	UC4	UC5	UC6	UC7
Agora	X	X	X	X	X	X	X
UNESCO FMM		X		X	X		X
UNESCO DSS	X	X	X			X	X
ICT TT	X			X		X	
Digital Cinema	X	X		X			X
DobleVia	X	X	X	X			X
MIZAR		X		X	X		
EPIQ	X	X	X	X	X	X	X
CEDEP			X	X			
Empower Limburg	X	X	X		X		
UNIGE		X	X	X	X	X	X
ELSA	X						
ALTRAN	X	X			X	X	X

The results on the bandwidth and practicality of the pilots and the business demonstrators suggest that the approach and the provided tools can support different types of education and learning in changing settings. This positively answers the question, if the approach and the provided tools can facilitate a better awareness of existing skills and learning trajectories in different learning settings, namely formal education as well as non-formal and informal learning.

## 2.3 Range of competences

The range of competence levels that were targeted and reached by the pilots and business demonstrators indicate the impact and the relevance of the tools for lifelong competence development for the different competence levels.

The pilots addressed a broad range of competences and combined them into competence profiles. It is remarkable that the business related pilots (DobleVia, EPIQ, Empower Limburg and Altran) defined competence profiles along professional occupations, which partially shared the underlying competences. In the more formally organized educational activities the competence profiles were defined at a higher detail level.

Apart from the two UNESCO-IHE pilots the competence profiles and the underlying competences were not shared across the pilots. Some professional occupations used the same name for competence profiles (e.g. project manager), but given to the different application area they include some different professional competences.

Another remarkable insight is that educational organisations have a hierarchical understanding of competence profiles, competences, and learning activities. The number of entries in each

category indicates that many learning activities relate to a competence, and the competences are clustered into competence profiles (see Table 2.6). In this sense sometimes competence profiles can be considered as “super” competences. In the enterprise related business demonstrators, the competence profiles are considered as professional occupations that can share competences. Moreover, learning activities are not considered as specific to one particular competence or competence profile. Instead, learning activities may touch multiple competences. This view is clearly visible in the numbers of the Altran business demonstrator, but also present in the DobleVia description (see Table 2.6, and the related appendices).

**Table 2.6 Competence profiles, competences and learning activities**

Pilot/Business Demonstrator	Competence profiles	Competences	Learning activities
Agora	7	36	230
UNESCO FMM	7	21	N/A
UNESCO DSS	7	24	N/A
ICT TT	1	4	N/A
Digital Cinema	1	9	28
DobleVia	3	17	32
MIZAR	9	64	106
EPIQ	8	Each profile consists of more than 300 single competences. A selection of those competences (22) was used in the demonstrator	From 1 to 10 learning actions associated to each competence
CEDEP	1	18	N/A
Empower Limburg	4	23	20
UNIGE	1	5	N/A
ELSA	1	1	8
ALTRAN	18	45	16

The evaluation results of pilot and business demonstrators indicate that the competence descriptions appear to be supportive for learners at different competence levels for selecting appropriate learning paths within a learning setting for improving and maintaining their competences. Next chapters describe in detail the impact indicators achieved in the TENCompetence piloting/demonstrating activities from the perspective of the participating learners, the involved organizations and the identified business opportunities.

### 3. Impact on participants

Impact indicators on participants focus on the benefits experienced by the individual learners participating in pilots and business demonstrators. The specific aspects of impact have been the following (see Appendix 1 for the detailed questions bound to these impact indicators type and the rest of Appendixes for each pilot/ demonstrator related data).

1. What has been learned by the participants (how many and on which competence profiles or/and competences learners have been working)
2. How many participants would like to further develop competences adopting the TENCompetence approach
3. Appreciation of the learning experience
4. Progress on use cases, type of competence development and participants' own functioning

#### 3.1 What has been learned by the participants

Table 3.1 compiles the information regarding the impact indicators questions 28 and 29 of Appendix 1. The table shows that in the pilots and demonstrators, which provided answers to these questions, all the participants had learning benefits. All of them have worked on at least one competence profile (some had worked on more than one). Depending on the pilot, the different types of competences (knowledge, functional and reflective, social, meta-cognition...) were more or less developed. This result may mean that the effect of competence type development depends on the design of the pilot and not on the TENCompetence tooling characteristics. Most of the problems pointed out by the participants that hindered their competence development were related to general technical problems not directly related to the tooling functionality.

**Table 3.1 What has been learned by the participants**

<b>Pilot / BD</b>	<b>What has been learned by the participants (how many and on which competence profiles or/and competences learners have been working)</b>	<b>How many participants have completed the development plan</b>
Agora	The quantitative results highlight two scenarios regarding the number of competence profiles the participants worked on: one part (57%) worked on one competence profile only, whereas another part (43%) worked on different competence profiles, i.e. 32% on two competence profiles, 9% on three and 4% on four. Most of the participants have learned “much” or “not little, not much” with regards to knowledge, functional and reflective skills. The majority learned “almost nothing” or “little” regarding social skills. However more than half of the participants have discovered what things they can learn/improve in the future.	
DSS	Overall the scores shown in Table A.3.25 are at the (very) positive side. The overall average rating of 3,82 indicates that as well. Only social skills and behaving according to professional rules and values scores less. There are two persons with an overall score for all competences lower than 3. The person with the lowest score has had ‘complete’ technical problems; the other with a somewhat higher overall score had ‘large’ problems. The other person with complete technical problems has an overall score of 3,33, so a bit better than neutral.	
FMM02	Table A.4.21 shows the perceptions of the participants regarding the improvement in different types of competences. Overall the scores are at the positive side. The majority of the participants rate the first four competences as having learned much	

	or very much. The overall average rating of 3,59 indicates that as well. Of the 1 to 3 persons that indicate to have learned (almost) nothing, one person has had severe technical problems and he indicates to have learned nothing in all categories of competences.	
ICT	<p>There were three competence profiles participants could devote activities to. 29 of them worked on the I*Teach competence profile, 23 of them on the “Folk dances” and four in the “Carving” competence profile. Hence, of the 31 participants seven participants worked on one profile, 22 on two profiles, and 2 participants performed activities related to all three competence profiles.</p> <p>Table A.5.7 gives an overview of how much participants have learned with regard to knowledge, functional skills (knowing how to do things), social skills, norms and values (knowing how to behave according to the rules and values of the profession), metacognition (knowing how to guide my future use by reflection on current practice), and creativity (Knowing how to find creative solutions for problems related to this competence). We see that the mean scores here tend to be towards ‘much learned’ for knowledge and functional skills, and towards ‘very much learned’ for social skills and professional norms and values. Metacognition and creativity is a bit in between, but these are still high scores in terms of increased competence.</p>	
DC	Participants worked in some (knowledge and functional) competences of the Ninos programme editor competence profile.	
MIZAR	<p>We segment this endpoint into two groups: The learners have learned mostly between 2 and 4 competence profiles. Some people have chosen to work in a more comprehensive way the competence profiles, while others have preferred to go forward and not be as comprehensive in each of the skills involved. They have worked more on the competencies involving social skills.</p> <p>On the other hand, tutor-role learners have been more exhaustive, almost all have learned all the competence profiles, and attempted to acquire skills in greater depth.</p>	6 out of 12 participants (50%)
DobleVia	The participants have been working in one competence profile. It is important to mention that they 4 out of the 5 participants selected a competence profile related to a better company position (instead of similar profiles). The other participant decided to reinforce the competences of their current profile to keep up to date.	All, 5. The activities planned for each competence profile were designed so that they were feasible to be completed with the time available in the working place.
Altran	Only the personal career development plan has been created, now they know the learning actions and courses they should follow.	N/A
Empower Limburg	The Empower pilot is ongoing, so this cannot be assessed yet.	The Empower pilot is ongoing, so this cannot be assessed yet.
CEDEP	Participants had a Web2.0 collaboration experience.	N/A
EPIQ	General progress on the different types of competences.	All (28)
ELSA	Self-directed collaborative search in	All 15 participants completed their

	preparation for a presentation on a self-selected theme. Mainly for collecting videos and pictures to illustrate their slides Google was used for text-based resources LW2.0 as support tool during face-to-face meetings	assignments related to the seminar. 10 of them used LearnWeb 2.0 during their self-organized learning activities. 5 of them used other means, for example Google Web search and communication via email.
UniGe	N/A, still under investigation	N/A

### 3.2 Participants who would like to continue

Table 3.2 compiles how many participants in pilots and demonstrators, providing this information, would like to further develop competences adopting the TENCompetence approach (impact indicators question 30 of Appendix 1). A large majority of the learners participating in the pilots, especially the Agora, the two on Water Management and ICT Teacher Training, wants to continue to develop the competences further in the future using the TENCompetence approach. In fact, there are some evidences for the Agora and Water Management pilots that show that they are using the system beyond the official end of the piloting activities. In the business demonstrators the desire to continue with the approach is divergent. In some of the demonstrators (such as MIZAR, Altran, ELSA) participants are undecided. The reasons behind this result have mainly to do with the profile / previous experiences of the participants (mind change) or with specific requests (e.g., integration with proprietary tooling in the organization, changes in the graphical interface). The participants of two demonstrators showed a clear tendency to like to continue using the approach: DobleVia and EPIQ. Both demonstrators have in common that they are small or medium companies, their goal was related to human resource / career development and that the organizations did not have any specific solution for this application area.

**Table 3.2 Do participants want to continue with the approach?**

Pilot / BD	How many participants would like to further develop competences adopting the TENCompetence approach
Agora	A large majority of Agora participants (90%) wants to continue to develop the competence(s) further in the future, 8,5% is not sure, and only 1,2% does not want to develop the competence(s) further. This is supported by the fact that the participants continue using the tools after the end of the pilot. It was observed that not only the participants would like to develop the competences further but also had discovered in the competence profile list that they could learn about other competences they did not think of before and even new competences not listed in the system.
DSS	Only two of the 42 participants are unsure about continuing their development. The rest (40) would like to continue.
FMM02	Only two of the 37 participants are unsure about continuing their development, as shown in Table A.4.23. Besides there are some [visits] to the Liferay portal for the FMM pilot after the end of the formal period of the pilot. In particular, between the end of July and the end of September (2009), there have been a total of 22 visits with a 3.41 pages/visit. The visits come from 8 different counties, which match up with those countries visiting the site during the formal period of the pilot
ICT	A large majority of 87% wants to (certainly) continue to develop this competence(s) further in the future, one person is not sure, and only two persons (6%) do not want to develop the competence(s) further. One person leaves this item blank.



DC	The participants appreciated the approach; more tight integration of the tooling in order to enhance its usability was requested in order to continue using the approach.
MIZAR	<p>The <b>majority</b> of participants (9, that means 75/80%) are <b>undecided</b> to continue with the approach.</p> <p>In contrast, <b>the rest is divided equally among those who like to continue with the approach and those who will not like to continue</b> with the approach.</p> <p>There are some general facts which MIZAR believes should be considered because they help to understand the results:</p> <ul style="list-style-type: none"> <li>- The vast majority of participants had never followed any course online, so that their environment was "bizarre".</li> <li>- Moreover, almost none of the participants knew or had taken any competence based study and in general preferred to follow more classical content approaches.</li> </ul> <p>Incidents reported by the participants and observations made by MIZAR:</p> <ul style="list-style-type: none"> <li>- Regarding training, a participant said: <i>"I would add video examples for the tutors. When skills are presented or methods for using the material, I would show it so participants see it in action. I would include a better training session so we understand and feel confident using it from the beginning."</i> MIZAR also observed that the help guides should be more interactive providing users with support in every step when using the tools.</li> <li>- There were some problems regarding the management of users in the system (Liferay and TENCompetence tools working independently). MIZAR suggests that the administration tooling of the LifeRay platform should be common with the TENCompetence tools.</li> <li>- The CAS system for the accesses is not working properly and it is only useful if there is only one tool integrated in Liferay.</li> <li>- The "evidence" functionality in the PDP tool was confusing for the participants.</li> </ul>
DobleVia	After the experience with TENCompetence, <b>all</b> participants are keener now to keep developing competences. For example, they now take more serious the Friday time reserved for competence development activities. The leader of each working group is coordinating these activities without an explicit request from the organization.
Altran	Although the TENCompetence tools have been useful to draw the personal development plans, the lack of connection of these tools with the corporative tool (SIG) and the usability limitations of the versions of the tools at the time of implementing the demonstrator have made that <b>the participants do not want to continue with the experienced approach</b> .
Empower Limburg	<b>Not clear</b> , as the pilot is still ongoing.
CEDEP	It is <b>not clear</b> ; participants found the experience interesting but thought also that it was not for them. Three participants expressed interest in using TENTube within their companies, rather than for inter-organizational learning.
EPIQ	<b>24</b> participants want to continue.
ELSA	<p>Despite usability issues and the occasional performance issues, the participants found the software helpful - in particular the search for Web 2.0 resources and the facilities for grouping and sharing.</p> <p>The tutors found LearnWeb 2.0 to be mainly a platform for knowledge management, not for learning. This implies that the tutors need to restructure their teaching and mentoring strategies accordingly. They would be willing to do so, provided the user interface will be improved.</p>
UniGe	N/A



### 3.3 Appreciation of the learning experience

Table 3.3 shows the appreciation of the learning experience based on TENCompetence by pilots and demonstrators' participants (impact indicators question 31 of Appendix 1 for business demonstrators). The majority of the participants appreciate positively the learning experience. In the Empower Limburg there are a significant number of participants that are neutral in their appreciation. And only in the Altran demonstrator more than the half of the participants rate their learning experience as negative.

**Table 3.3 Appreciation of the learning experience**

Pilot / BD	How many participants appreciate positively the learning experience based on TENCompetence, how many are neutral in their appreciation and how many rate it as negative
Agora	The average appreciation is that the participants enjoyed this way of learning. 75% of the participant enjoyed this way of learning (very much). 2,5% did not enjoy this way of learning while 20,5% held a neutral position [post-test]. The qualitative results support this tendency and stress that the participants appreciated this way of learning mainly because they could work at their own rhythm, had flexibility to learn, and could choose the activities according to their own level of proficiency
DSS	Most participants enjoyed this way of learning. It is not clear why three persons did not enjoy this way of learning. See table A.3.26.
FMM02	It is clear that most participants enjoyed this way of learning very much (see Table A.40.22). The one person who doesn't like it at all has had severe technical problems.
ICT	The average appreciation is that the participants enjoyed this way of learning. 84% of the participants enjoyed this way of learning (very much). The other 16 percent is neutral, but no one is negative.
DC	The participants appreciated positively the experience, though they indicated some limitations.
MIZAR	All (12) the participants appreciated positively the learning experience.
DobleVia	4 participants appreciated positively the learning experience based on TENC 1 participant rated the learning experience based on TENC as negative (This participant thinks that before using software tools, the organizational strategy /change regarding competence development should be clearer and better organized)
Altran	3 are neutral and 5 are negative (see Table 3.2) regarding the experience.
Empower Limburg	Overall opinions on the PDP were as follows: <ul style="list-style-type: none"> <li>• Positive: 40% (n=6)</li> <li>• Neutral: 40% (n=6)</li> <li>• Negative: 7% (n=1)</li> </ul> No opinion: 13% (n=2)
CEDEP	Very <b>diverse reactions</b> . Most common is that this is interesting but it is not for me (see Table 3.2). Interestingly, although the short exposure to GMPTube did not trigger the desired learning-orientated motivation, executives from three large companies in the biopharma, media and industrial sectors have expressed interest in applying it internally in their companies as a way to connect marketing people, creative people and IT professionals respectively, rather than using it to exchange knowledge with classmates. Two months after the workshop, about midway between Period 2 and Period 3, we sent GMP N6 participants an email to collect their feedback. In particular, we asked them (1) if they had encountered any barriers preventing them to access GMPTube, (2) the main reasons why they are not bigger users, and (3) the main reason why they had never submitted a video. In answer to these questions they mentioned a number of technical and

	non-technical barriers. Technical barriers included the company firewall, Acrobat Flash Player not allowed on company desktops, incompatible software and lack of a webcam. Non-Technical barriers included no time, no good reason to use yet as there was a lack of a defined group project, the group project was just starting, and no new input from classmates, lack of experience with technology, lack of interest in networking tools, and a dislike of being filmed.
EPIQ	83% are positive
ELSA	10 participants appreciated the ideas behind LearnWeb 2.0. For 5 participants the usability issues of the current version of the software overshadowed the principles. A similar result was obtained from the interviews with the tutors.
UniGe	N/A

As compiled in Table 3.4 in general the participants pointed out the experienced control of their own learning when using the TENCompetence approach as well as the flexibility supported by the system.

**Table 3.4 Comments regarding learning experience**

Pilot / BD	Additional comments of the learning experience (control of own learning, preference of fixed versus flexible learning route)
Agora	<p>We measured six aspects related to the control of own learning. These were:</p> <ul style="list-style-type: none"> <li>▪ In the beginning, I quickly got an overview of the competences involved and my current proficiency level</li> <li>▪ I had a good overview on what I had done and what I had to do</li> <li>▪ I had insight into how my learning progressed</li> <li>▪ I had the feeling that I learned exactly what I wanted to learn</li> <li>▪ I had the feeling that I could plan my own learning</li> <li>▪ I felt in control of my own learning</li> </ul> <p>Answers to the six questions correlated strongly, thus that we can say that together they measured the extent to which participants felt in control of their own learning. When rounded to the most nearby round value, we obtained the following scores: agree (completely) (62%), neutral (29%), disagree (completely) (9%). Qualitative results confirm this positive view as participants explained how they benefit from the PDP functionalities and structure, i.e. being able to work at their own rhythm, being able to work from home, being able to choose the activities according to their own level of proficiency, being able to have a control on which activities they have done and the one remaining to perform.</p>
DSS	<p>Taken all scores on this question together we obtain the following averages: agree (completely) 65,1%, neutral 24,6%, disagree (very much) 10,3%. This is very much in line with the results from the FMM-pilot. Only two of the 42 participants score 'Agree' on all six aspects, and there is one person who scores 'Agree completely' on all aspects. Five persons score averagely lower than three (neutral) on all six questions. One of them is a person who reported serious problems in technique.</p>
FMM02	<p>Taken all scores on this question together we obtain the following averages: agree (completely) 65,4%, neutral 24,1%, disagree (very much) 10,5%. Three of the 37 participants score 'Agree' on all six aspects. There is one person who has a lower average score than 2 (disagree). This person had indicated before to have had very serious technical problems. See Table A.3.34</p>
ICT	<p>Taken all scores on the question related to the appreciation of control over their own learning together, answers to the six questions correlated strongly, thus that we can say that together they measured the extent to which participants felt in control of their own learning. Eleven of the 31 participants score 'Agree' on all six aspects, 6 of the 31 score 'Disagree' on all six aspects. When rounded to the most nearby round value, we obtained the following scores: agree (completely) (61%),</p>

	neutral (3%), disagree (36%). Of course here there are preferences as well: 14 of the 30 participants indicated in the pre-test that they like system control over learning paths, rather than being in control themselves.										
DC	The participants appreciated the flexibility of the approach and the learning resources.										
MIZAR	<p>Most of them valued positively the control of their own learning, even if they were not used to it. 70% of the participants preferred the flexible learning route, versus the fixed one, and they liked to know their competence level and to be able to know what they have to learn or improve (vs. absolutely guided learning). Nevertheless, some of them they thought that it was a little bit confusing at the beginning. Qualitative comments include <i>“I liked the flexibility to choose when to work and focus on what I wanted to because it was really personal to me. I felt more responsible for my learning and held accountable.”</i> They also scored the learning aspects that they value the most in this competence based training system. 1 worst score, 5 best score. The answers show that they did appreciate the control they had of their learning the supported flexibility.</p> <table border="1"> <thead> <tr> <th>Aspects valued in this competence based training</th><th>Score (average)</th></tr> </thead> <tbody> <tr> <td>Control of my own learning.</td><td>4</td></tr> <tr> <td>To know about my competence level, what I have to learn or improve on.</td><td>4</td></tr> <tr> <td>Flexibility to choose a personal development plan.</td><td>4</td></tr> <tr> <td>To choose the time I spend on my training.</td><td>5</td></tr> </tbody> </table>	Aspects valued in this competence based training	Score (average)	Control of my own learning.	4	To know about my competence level, what I have to learn or improve on.	4	Flexibility to choose a personal development plan.	4	To choose the time I spend on my training.	5
Aspects valued in this competence based training	Score (average)										
Control of my own learning.	4										
To know about my competence level, what I have to learn or improve on.	4										
Flexibility to choose a personal development plan.	4										
To choose the time I spend on my training.	5										
DobleVia	In the interviews the participants commented the flexibility of the approach basically because it is web-based, and asynchronous personalized solution to support their lifelong learning (see next section for a further discussion)										
Altran	N/A										
Empower Limburg	N/A										
CEDEP	N/A										
EPIQ	Most of the participants (83%) enjoy the possibility to get access to PDPs and recommended learning routes, they can follow in a flexible way (self-paced online learning).										
ELSA	The learners appreciated the functionality to search collaboratively in several Web 2.0 resources. In addition, the grouping functionality was greatly appreciated for bringing the material together and for sharing it with group members.										
UniGe	N/A										

### 3.4 Communication and social interaction

Table 3.5 collects how communication and social interaction have taken place in the pilots and business demonstrators. The collaboration potential of the PCM tooling (including those provided by Liferay) was overall appreciated positively by the participants. Its use varies depending on the nature of the pilots. In the Agora and ICT pilots, where participants had the opportunity to meet in face-to-face sessions, the use of the PDP blogging or the Liferay forum was limited. However, when asked they rated these functionality as (very) useful. In these pilots the social interaction supported by the tooling was mainly mediated by objects, i.e., participants used LearnWeb to share resources. When the participants in these two pilots were asked to rate the functionalities available in LearnWeb, they were quite positive in general and rated the “sharing” usage as the most useful.

In the case of the two UNESCO-IHE pilots (DSS and FMM02), in which the participants did not have the chance to meet face-to-face, the PDP blogging and Liferay forum / message board

tools were largely used and highly appreciated by the participants, whereas the LearnWeb tool for sharing of resources was used less. Interestingly, in both UNESCO-IHE pilots the more successful use of the PDP blogging was “I discussed the competences that I had to master and the progress.” Those using the Liferay forum employed it mainly to seek help on the PDP. It is also interesting that the participants read the profiles of others in Liferay to have an impression of the people participating in the pilot or to look for specific expertise. In these pilots LearnWeb was mainly used to search resources and not to share them. However, most of them rate the uses of LearnWeb (also for sharing resources) as (very) useful. Two third of the DSS participants and a bit more than one-third has not used additional means for communication, such as e-mail or Skype. In the DSS pilot and in the Digital Cinema pilot, some participants asked for a more integrated way of presenting communication facilities (blogs, forum, LearnWeb...)

In the MIZAR business demonstrator the communication facilities were mainly used to ask issues about the tooling since learners preferred to communicate directly with their tutors using e-mail. DobleVia, Altran and Empower Limburg have already existing tooling to support social interaction within their organizations, and it was combined with the use of the PCM for the creation of personal plans and the assessment of competences. The challenges for social interaction using TENTube in large inter-organizational settings have been largely explored in the CEDEP demonstrator. The ELSA and UniGe also explored the social interaction opportunities related to sharing resources using LearnWeb in two different scenarios.

**Table 3.5 Communication and social interaction**

Pilot / BD	How communication and social interaction have taken place in the experiences
Agora	Learners participating in the Agora pilot interacted mainly face to face in the Agora computer room. They also have the blog of the PDP tool and the forum of Liferay available for communication purposes. The LearnWeb2.0 was also used for social indirect interactions (object-mediated, i.e. interaction through sharing objects). According to the evaluation results of the pilot study, around half of the participants seemed to have collaborated with other learners (47%) whereas the other half did not (45%). The results show that participants interact less when the learning activities provide assessment results / feedback. The use of the PDP blog and the Liferay forum was limited. A large majority of 75% participants did not use the forum, but the people who used it were very active. 76% of the participants either think the forum is useful (63%) or very useful (13%). From the potential uses of LearnWeb, Agora participants were more positive with regards to the possibility to share resources with their colleagues as 87% find it whether useful (60%) or very useful (27%) and with only one participant being negative and one showing a neutral position.
DSS	Similarly to the Agora pilot, DSS pilot participants have available the PDP blogging functionalities, the Liferay forum, the Liferay message board and the LearnWeb. Since in this pilot, the learners did not have the chance to meet face to face, they did use the communication functionality facilitated. According to the evaluation results, 80.5% of the participants used the tools to communicate with other participants. Next table (Table A.3.44) shows what tooling used the participants and for what purpose.

N=41				
	Shared Blog in PDP	Message Board in LifeRay	LearnWeb	#
I worked together on an assignment	<b>50.0% (9)</b>	44.4% (8)	11.1% (2)	18
I sought help on course content	40.5% (15)	<b>56.8% (21)</b>	10.8% (4)	37
I provided help on course content to others	<b>50.0% (12)</b>	45.8% (11)	4.2% (1)	24
I discussed course content	<b>50.0% (14)</b>	46.4% (13)	10.7% (3)	28
I discussed the competences that I had to master and the progress	<b>65.2% (15)</b>	34.8% (8)	8.7% (2)	23
I shared knowledge and learning resources	<b>53.8% (14)</b>	38.5% (10)	30.8% (8)	26
I sought help on course organisation	22.2% (4)	<b>66.7% (12)</b>	11.1% (2)	18
I provided help on course organisation others	<b>45.5% (5)</b>	<b>45.5% (5)</b>	18.2% (2)	11
I made appointments, e.g. for chat meetings	<b>62.5% (5)</b>	12.5% (1)	25.0% (2)	8
I made organisational decisions	<b>62.5% (5)</b>	25.0% (2)	12.5% (1)	8
I socialized with them	<b>50.0% (5)</b>	<b>50.0% (5)</b>	20.0% (2)	10
Other, namely ....	<b>57.1% (4)</b>	42.9% (3)	28.6% (2)	7

Three persons tick 'other' in combination with Shared Blog in PDP. They say: Shared my progress on the shared blog forum; Share blog in learning experience; I entered my learning experience. Two persons tick 'other' in combination with Message Board in Life Ray. One of them adds: search for questions and answers that could be useful.

The 41 participants differed widely in the number of times that they created a new shared blog entry or updated an existing one. The average is more than 14 blogs. While 4 participants did not create or update any entries, six created or updated 15 blogs, and in total 14 participants created and updated more than 15 blogs, with one person having created/updated 50 blogs.

Most participants (92,6%) read blogs from others. 7,3% of the participants did not read blogs from others; 2,4% because there were (almost) no blogs from others, 4,9% indicated there were blogs from others but they didn't read them. 34,1% read (almost) all blogs from others and 58,5% read only those blogs from others that seemed relevant to them.

82,9% of the 41 participants also rated the use of the blog as (very) useful, 12,2% as neutral, and 4,9% as useless.

Next table (A.3.45) shows the uses of the forum in Liferay. We see that more than one-third does not use the forum, and that most persons use it for seeking help on the PDP. The other purposes are: Updates or answers to other people, I used it to provide help to others; Mainly to with regard to the assignments. The 41 participants differed in the number of times that they created a new Topic on the Forum or replied to an existing one from someone else in LifeRay. Thirteen say they never did anything. That is a bit less than the 15 who said they did not use the forum in the previous question. The average is 7,2 times. The maximum is 50 times (two persons).

N=41		
	%	#
I didn't use the forum	36.6%	15
I used it to seek help on the PDP	<b>43.9%</b>	<b>18</b>
I used it to be informed about the new activities	31.7%	13
I think it will be useful in the future when I work from home and I need some advice/help	22.0%	9
I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities	9.8%	4
Other purposes	7.3%	3



	<p>Moreover, 48,8% of the participants read (almost) all post from others and a 34,1% read only those posts from others that seemed relevant to them. The majority of more than 80% think that the Forum is (very) useful.</p> <p>Another issue relevant to social interaction in this pilot is that most participants read the profiles of others. Next table (A.3.49) shows the purposes for reading participants' profiles.</p> <table><tr><th>N=41</th><th>%</th><th>#</th></tr><tr><td>To get an impression of who the people in this course are</td><td>56.1%</td><td>23</td></tr><tr><td>To look for specific expertise</td><td>36.6%</td><td>15</td></tr><tr><td>Before I contacted a specific person</td><td>7.3%</td><td>3</td></tr><tr><td>Other</td><td>19.5%</td><td>8</td></tr></table> <p>Regarding LearnWeb, the learners used the tool mainly to find useful resources (61%) or additional resources for working on their competences (36,6%). However, most of them rate the uses of LearnWeb (also for sharing resources) as (very) useful, see Tables A.3.52-57.</p> <p>Finally, Table A.3.58 in Appendix 3 shows the answers to the question on the use of other means for communication. Almost two-third say 'No'. Furthermore we see some use of e-mail and chat. There is one person who ticks e-mail, chat, Skype, telephone and video-conferencing, and another one e-mail, chat, Skype, telephone and face-to-face meetings. One person who ticks face-to-face meetings adds a comment: 'On-line friends'.</p>	N=41	%	#	To get an impression of who the people in this course are	56.1%	23	To look for specific expertise	36.6%	15	Before I contacted a specific person	7.3%	3	Other	19.5%	8																																																							
N=41	%	#																																																																					
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To look for specific expertise	36.6%	15																																																																					
Before I contacted a specific person	7.3%	3																																																																					
Other	19.5%	8																																																																					
FMM02	<p>The tooling available in the FMM02 is the same than in the DSS pilot. In this case, 65% of the participants used the tools to communicate with others. Next table (A.4.40 in Appendix 4) shows what tooling used the participants and for what purpose.</p> <table><tr><th></th><th>Shared Blog in PDP</th><th>Message Board in LifeRay</th><th>LearnWeb</th></tr><tr><td>I worked together on an assignment</td><td>38.9% (7)</td><td>44.4% (8)</td><td>22.2% (4)</td></tr><tr><td>I sought help on course content</td><td>41.7% (10)</td><td>54.2% (13)</td><td>16.7% (4)</td></tr><tr><td>I provided help on course content to others</td><td>23.8% (5)</td><td>66.7% (14)</td><td>14.3% (3)</td></tr><tr><td>I discussed course content</td><td>50.0% (10)</td><td>45.0% (9)</td><td>20.0% (4)</td></tr><tr><td>I discussed the competences that I had to master and the progress</td><td>66.7% (12)</td><td>22.2% (4)</td><td>22.2% (4)</td></tr><tr><td>I shared knowledge and learning resources</td><td>61.1% (11)</td><td>27.8% (5)</td><td>22.2% (4)</td></tr><tr><td>I sought help on course organisation</td><td>37.5% (6)</td><td>37.5% (6)</td><td>25.0% (4)</td></tr><tr><td>I provided help on course organisation</td><td>44.4% (4)</td><td>11.1% (1)</td><td>44.4% (4)</td></tr><tr><td>others</td><td></td><td></td><td></td></tr><tr><td>I made appointments, e.g. for chat meetings</td><td>40.0% (4)</td><td>20.0% (2)</td><td>40.0% (4)</td></tr><tr><td>I made organisational decisions</td><td>40.0% (4)</td><td>20.0% (2)</td><td>40.0% (4)</td></tr><tr><td>I socialized with them</td><td>33.3% (4)</td><td>25.0% (3)</td><td>41.7% (5)</td></tr><tr><td>Other, namely ....</td><td></td><td></td><td></td></tr></table> <p>The 37 participants differed widely in the number of times that they created a new shared blog entry or updated an existing one. The average is almost 11 blogs. While 4 participants did not create or update any entries, seven created or updated 15 blogs, and two participants created and updated 25 blogs. 24,3% read (almost) all blogs from others and 59,5% read only those blogs from others that seemed relevant to them.</p> <p>54% of the participants used the forum with the following purposes (Table A.4.41):</p> <table><tr><th>N=37</th><th>%</th></tr><tr><td>I didn't use the forum</td><td>45.9%</td></tr><tr><td>I used it to seek help on the PDP</td><td>35.1%</td></tr><tr><td>I used it to be informed about the new activities</td><td>13.5%</td></tr><tr><td>I think it will be useful in the future when I work from home and I need some advice/help</td><td>5.4%</td></tr><tr><td>I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities</td><td>5.4%</td></tr><tr><td>Other purposes</td><td>8.1%</td></tr></table>		Shared Blog in PDP	Message Board in LifeRay	LearnWeb	I worked together on an assignment	38.9% (7)	44.4% (8)	22.2% (4)	I sought help on course content	41.7% (10)	54.2% (13)	16.7% (4)	I provided help on course content to others	23.8% (5)	66.7% (14)	14.3% (3)	I discussed course content	50.0% (10)	45.0% (9)	20.0% (4)	I discussed the competences that I had to master and the progress	66.7% (12)	22.2% (4)	22.2% (4)	I shared knowledge and learning resources	61.1% (11)	27.8% (5)	22.2% (4)	I sought help on course organisation	37.5% (6)	37.5% (6)	25.0% (4)	I provided help on course organisation	44.4% (4)	11.1% (1)	44.4% (4)	others				I made appointments, e.g. for chat meetings	40.0% (4)	20.0% (2)	40.0% (4)	I made organisational decisions	40.0% (4)	20.0% (2)	40.0% (4)	I socialized with them	33.3% (4)	25.0% (3)	41.7% (5)	Other, namely ....				N=37	%	I didn't use the forum	45.9%	I used it to seek help on the PDP	35.1%	I used it to be informed about the new activities	13.5%	I think it will be useful in the future when I work from home and I need some advice/help	5.4%	I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities	5.4%	Other purposes	8.1%
	Shared Blog in PDP	Message Board in LifeRay	LearnWeb																																																																				
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I made appointments, e.g. for chat meetings	40.0% (4)	20.0% (2)	40.0% (4)																																																																				
I made organisational decisions	40.0% (4)	20.0% (2)	40.0% (4)																																																																				
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I used it to be informed about the new activities	13.5%																																																																						
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I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities	5.4%																																																																						
Other purposes	8.1%																																																																						

	<p>The other purposes are: know troubles of other participants and try help; ask help in learning; problems; to get help mainly about technical problems and assignments; searched for help regarding problems with the assignments and the modelling tools; follow discussions about problems while performing assignments and they were really helpful</p> <p>The 37 participants differed in the number of times that they created a new Topic on the Forum or replied to an existing one from someone else in Liferay. The average is almost 6 times. The maximum is 54 times. 24,3% of the participants read (almost) all posts from others and 51,4% of the participants read those posts from others that seemed relevant to them. The majority of almost 60% think that the Forum is (very) useful.</p> <p>In this pilot, the participants profiles were also read (see Table A.4.44)</p> <table><tr><td>N=37</td><td>%</td></tr><tr><td>To get an impression of who the people in this course are</td><td>67.6%</td></tr><tr><td>To look for specific expertise</td><td>21.6%</td></tr><tr><td>Before I contacted a specific person</td><td>2.7%</td></tr><tr><td>Other</td><td>21.6%</td></tr></table> <p>Regarding LearnWeb, the learners used the tool mainly to find useful resources (35,1%) or additional resources for working on their competences (45,9%). However, most of them rate the uses of LearnWeb (also for sharing resources) as (very) useful, see Tables A.4.47. One of the comments of the participants was “In general to communication resources I suggest a more integrated way of presentation. I mean a unique home page with conventional menu for selecting actions in specific topics, for example being possible to select communication option and then appear three options: blogs, LearnWeb and forum.”</p> <p>Finally, Table A.3.48 in Appendix 3 shows the answers to the question on the use of other means for communication. A bit more than one-third has not used other means for communication. More than half of the participants have used e-mail. There is one person who uses chat in addition, and there is one person who ticks e-mail, chat, telephone and face-to-face meetings.</p>	N=37	%	To get an impression of who the people in this course are	67.6%	To look for specific expertise	21.6%	Before I contacted a specific person	2.7%	Other	21.6%																																							
N=37	%																																																	
To get an impression of who the people in this course are	67.6%																																																	
To look for specific expertise	21.6%																																																	
Before I contacted a specific person	2.7%																																																	
Other	21.6%																																																	
ICT	<p>In this pilot, Liferay was not used. For social interaction purposes they had the blogging in the PDP and LearnWeb, besides the face-to-face sessions.</p> <p>We asked the participants to score six statements regarding collaboration on the same five-point scale.</p> <p>1. I had lively and stimulating discussions with other participants in the pilot</p> <p>2. I learned a lot from other participants in the pilots</p> <p>3. In the larger group of all people following this pilot, we had a lively and stimulating discussion</p> <p>4. In the larger group of all people following this pilot, we had a lively and stimulating exchange of data and files</p> <p>5. Other participants in the pilot were able to answer my questions</p> <p>6. I provided useful help to other participants in the pilot</p> <table><tr><td>N=31</td><td>Discussions in pilot</td><td>Learned a lot in pilot</td><td>Discussion others</td><td>Exchange others</td><td>Others answer</td><td>Provide help</td></tr><tr><td>++</td><td>22,6%</td><td>35,5%</td><td>19,4%</td><td>29,0%</td><td>3,3%</td><td>0,0%</td></tr><tr><td>+</td><td>64,5%</td><td>54,8%</td><td>67,7%</td><td>61,3%</td><td>70,0%</td><td>64,5%</td></tr><tr><td>+/-</td><td>3,2%</td><td>3,2%</td><td>9,7%</td><td>3,2%</td><td>10,0%</td><td>9,7%</td></tr><tr><td>-</td><td>9,7%</td><td>6,5%</td><td>3,2%</td><td>6,5%</td><td>16,7%</td><td>22,6%</td></tr><tr><td>--</td><td>0,0%</td><td>0,0%</td><td>0,0%</td><td>0,0%</td><td>0,0%</td><td>3,2%</td></tr><tr><td>Empty</td><td></td><td></td><td></td><td></td><td>1</td><td></td></tr></table> <p>On the whole there is a lot of appreciation for collaboration. Average 82,1% agree (completely) on all six statements. Statement 4 ‘In the larger group of all people following this pilot, we had a lively and stimulating exchange of data and files’ has the highest score.</p> <p>LearnWeb was largely used in this pilot. Tables A.5.14-17 shows that in general LearnWeb is appreciated as (very) useful for searching, sharing and rating resources. As in the Agora pilot, the highest ratings are for the sharing resources functionality.</p>	N=31	Discussions in pilot	Learned a lot in pilot	Discussion others	Exchange others	Others answer	Provide help	++	22,6%	35,5%	19,4%	29,0%	3,3%	0,0%	+	64,5%	54,8%	67,7%	61,3%	70,0%	64,5%	+/-	3,2%	3,2%	9,7%	3,2%	10,0%	9,7%	-	9,7%	6,5%	3,2%	6,5%	16,7%	22,6%	--	0,0%	0,0%	0,0%	0,0%	0,0%	3,2%	Empty					1	
N=31	Discussions in pilot	Learned a lot in pilot	Discussion others	Exchange others	Others answer	Provide help																																												
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+	64,5%	54,8%	67,7%	61,3%	70,0%	64,5%																																												
+/-	3,2%	3,2%	9,7%	3,2%	10,0%	9,7%																																												
-	9,7%	6,5%	3,2%	6,5%	16,7%	22,6%																																												
--	0,0%	0,0%	0,0%	0,0%	0,0%	3,2%																																												
Empty					1																																													

DC	The participants could interact with others using the blogging in the PDP, the Liferay forum and the TENTube. The main comment in this respect from the participants was that these options were not related and that it would be nice if the posts in the PDP blogging could be linked somehow with the Liferay forum or at least aggregated in the same Liferay webpage.
MIZAR	In the MIZAR Business Demonstrator the use of the blogging in the PDP and the forum and chat in Liferay was combined. The evaluation results indicate that the blog was mainly used for personal purposes (reporting progress, indirect interaction vs. direct communication). The forum was used also very occasionally, once participants knew who was their tutor and their contact they preferred contacting her personally. The chat was not used at all. During the pilot they didn't contact at all with the other learners through the forum, and they just used the email: most of them thought that these tools were for technical questions about the tooling and not for discussing about activities and content.
DobleVia	In this Business Demonstrator other tooling available in the already existing DobleVia intranet was used for communication and interaction purposes.
Altran	In this Business Demonstrator the main aim was to obtain individualized training plans for each consultant. In this sense, there was not a need to support social interaction.
Empower Limburg	The Empower Limburg demonstrator planned to provide a Liferay site in which individuals can communicate, cooperate, and form sub-groups. The PDP was offered mainly to search the most suitable formal and informal learning activities and to support competence assessment. The online community in Liferay was finally not properly implemented before the end of the demonstrator period. The reasons were mainly related with timing, but the existence of an already developed Empower site and the participants' request of face-to-face meetings also slowed its implementation.
CEDEP	Social interaction is quite important in the CEDEP Business Demonstrator where participants form a social network that interact mainly through sharing objects (videos with experiences, implementation of new ideas) using TENTube. The results of the demonstrator showed that the social interaction was not as high as expected. The three main barriers to Web2.0 inter-organizational learning and collaboration in executive education have been: technological barriers (need of having a webcam, access to Web2.0 tools from the workplace), motivational barriers (so that participants use it also from home, the e-mail or Link-it is easier to use) and the inter-organizational aspect itself (confidential issues).
EPIQ	This demonstrator was mainly focused on the definition of a set of competence profiles and the provision of an overview of the possible formal and informal learning opportunities.
ELSA	ELSA centred the demonstrator on the use of LearnWeb for exchanging knowledge resources. The learners judged LearnWeb2.0 as helpful for collaborative web search in preparation for joint tasks. The learners perceived additional value, especially in functionalities like the concurrent search in various Web 2.0 services and the possibility of aggregating the found media resources in one place. They could imagine using the tool in the future. The idea of LearnWeb2.0 can thus be seen as seminal, its evolution can provide an exciting tool for collaborative learning. For future use the support functionality in the field of communication and awareness should be extended. For example, it would be helpful to integrate an instant messaging system to support the collaborative web search and communication process or to make the presence of group members in the system more transparent (e.g. "Who is working with which tool on what?").
UniGe	The use of LearnWeb in the UniGe demonstrator allowed realizing a dynamic and social database of lessons plan within the EPICT Italy initiative, where teachers are able to search and share didactic resources (using multiple search keys, ratings, etc.).



### 3.5 Progress on use cases, type of competence development and functioning

Table 3.6 summarizes how participants have made progress on the 7 core use-cases of TENCompetence. For some of the use cases the implementers also provided as an answer to the impact indicator question 33 the number of participants that said to progress on the use cases.

As said in chapter 2, the use cases were as following.

- Improving a specific competence for the current job (UC1)
- Improving a specific competence for a new job (UC2)
- Explore the community/learning network (UC3)
- Keeping up-to-date (UC4)
- Assessing the personal competences (UC5)
- Reflecting on competences (UC6)
- Receiving support for a non-trivial problem (UC7)

As expected in the definition of the pilots and demonstrators all use cases were considered in the piloting activities.

**Table 3.6 Progress on use cases**

Pilot/Business Demonstrator	UC1	UC2	UC3	UC4	UC5	UC6	UC7
Agora	X	X	X	X	X	X	X
UNESCO FMM		X		X	X		X
UNESCO DSS	X	X	X			X	X
ICT TT	X			X		X	
Digital Cinema	X	X		X			
DobleVia	All (5)	1		1			4
MIZAR	3	3	0	3	3	All (12)	All (12)
EPIQ	All (28)		All (28)		All (28)	All (28)	All (28)
CEDEP			Majority of participants (139)				
Empower Limburg	Planned	Planned	Planned		X	X	
UNIGE			All (55)				
ELSA			X				X
ALTRAN						All (8)	

Table 3.7 shows the type of competence development provided in the pilot and demonstrators.

The types of competence development considered were:

- instructed education and training (CD1)
- self-organised learning (autonomous learner) (CD2)
- human resource development (like self-organised learning but with pre-defined goals and pre-selected learning offers) (CD3)
- community of practice (voluntary knowledge exchange) (CD4)
- knowledge management (mandatory knowledge exchange) (CD5)

**Table 3.7 Progress on type of competence development**

Type of competence development provided	CD1	CD2	CD3	CD4	CD5
Agora		X		X	
UNESCO FMM	X	X		X	
UNESCO DSS	X	X		X	
ICT TT	X	X		X	

Digital Cinema		X			
DobleVia			X		X
MIZAR		X	X		X
EPIQ		X	X	X	
CEDEP				X	
Empower Limburg	X	X	X	X	
UNIGE				X	
ELSA	X	X			X
ALTRAN			X		

The already experienced effects that competence development has had on participants' functioning in their job, family or other context is gathered in Table 3.8. Participants seem to insist in the benefits experienced in the pilots/ demonstrators, and in a few cases specific benefits have been pointed out (e.g., job promotion in DobleVia). However, in general it is still soon to measure the real effects.

**Table 3.8 Effect on participants' own functioning**

<b>Pilot / BD</b>	<b>Effect that competence development has had on participants' functioning in their job, family or other context</b>
Agora	It was asked in the post-test, whether participants already experienced benefits from participating in the pilot. Of the 82 participants that answer this question 58,6% indicate they experienced (very) much benefits, 22% hold a neutral position, while 19,5% say little (14,6%) or (almost) nothing. On the other hand, participants indicated that they also benefited from this new way of learning and pointed out that they have lost their fear of the computer and new technologies.
DSS	21 of the 23 persons said to experience many benefits (See Table A.3.28). One of the two persons with little benefits has had 'complete' technical problems, 5 persons were neutral but indicated some specific benefits.
FMM02	Table A.4.24 shows that the participants experience much benefits from the pilot. Of the three persons that did not experience benefits, one has had severe technical problems.
ICT	It seems that there are two groups here: a group of 10 persons that say that they experienced little benefits, and a group of 19 persons with an experience of many benefits. Of the first group nine have indicated to have had large or complete technical hindrances. Of the group with many benefits only two had reported on many technical problems. Of the 31 participants 17 note down in what areas they experienced benefits.
DC	One of the participants is currently using the competences developed in the pilot in her current job.
MIZAR	This can only be evaluated if you consider the profile of the participants. The tutors said that it will partially help them to make a positive change in their functioning and, for sure, having more resources to use during their work with learners (improving their performance). On the other hand, almost all the learners have experienced a positive effect in their personal competence, but they don't connect it yet to the job, family effects. In any case, the language learning is a slow and long process that cannot be evaluated immediately.
DobleVia	One employer has progressed improving in higher profile. Her current job profile was Monitor and she used the PDP to acquire competences of the Animator profile. Recently she was upgraded to a Director job (it's like a coordinator of animators).
Altran	N/A
Empower	Not clear, as the pilot is still ongoing.

Limburg	
CEDEP	N/A
EPIQ	Most of the participants in the EPIQ's business demonstrator will keep their positions in the future. Because of the world economic crisis, some of the job positions may need to be consolidated, and the employees who are highly experienced and qualified will have to perform more complicated tasks and have a richer set of competences and/or higher competence level.
ELSA	N/A
UniGe	N/A

## 4. Impact on organizations

This chapter looks more closely to the impact the pilots and business demonstrators have had at the level of the organization. The specific aspects of impact have been (see Appendix 1 for the detailed questions bound to these impact indicators type and the rest of Appendixes for each pilot/ demonstrator related data):

1. Size of the organization and number of participants involved
2. Range of types of organizations
3. Range of types of businesses
4. Objectives of the various pilots and business demonstrators
5. Relation of use cases to the working processes and job positions in the organization
6. Continuation with the TENCompetence approach
7. Appreciation of the TENCompetence experience
8. Influence on the provider

### 4.1 *Size of the organization and number of participants involved*

Because of the fact that some pilots and business demonstrators either involved consortia of organizations or were organized around a group of diverse participants in pilots we only present an impression of the impact on organizations in terms of the relative number of participants per organization. This refers to impact indicator question 36 of Appendix 1.

The relative number of participants is the percentage of the total number of possible participants or the number of employees. With regard to the pilots the relative number is 100%. Especially with regard to the consortia the total number of employees is unknown.

**Table 4.1 Relative number of participants**

Name	# Participants	Total # Persons	%
Agora-pilot	138	138	100
UNESCO FMM-pilot	63	63	100
UNESCO DSS-pilot	105	105	100
ICT TT-pilot	32	32	100
Digital Cinema-pilot	3	3	100
DobleVia	13	140	9
MIZAR	12	12	100
EPIQ	28	95	30
CEDEP	139	Large companies	N/A
Empower Limburg	19	Different sizes of organizations	N/A
UNIGE	55	55	100
ELSA	18	30	60
ALTRAN	8	30	27

In ‘Empower Limburg’ the following situation existed: in principle, the business demonstrator was open to all employees of the seven participating organizations. However, as only four competence profiles were covered by the pilot, the real number of potential participants was limited. Given the size of the participating organizations (total between 5.000-10.000 employees) the number of potential participants is probably in the range of 50-200 participants.

We have to consider with regard to this aspect not only the quantitative impact based on the assumption that the higher percentage the higher impact on the organisation is achieved. The

qualitative impact may be influenced by having involved persons high in the hierarchy of organizations, capable of deciding on further experimentation, further development and fine-tuning and in the end integrating the infrastructure in the organization(s). We return to this issue when discussing the impact indicator question 41.

## 4.2 Range of types of organization

Looking at the types of organization quite a diversity is observed. This paragraph refers to impact indicator question 37.

**Table 4.2 Types of organization involved**

Name	Type of organization
Agora-pilot	Non-profit organization
UNESCO FMM-pilot	Higher education institute
UNESCO DSS-pilot	Higher education institute
ICT TT-pilot	Ministry of Education
Digital Cinema-pilot	University and professional partners EU project
DobleVia	SME (services sector)
MIZAR	SME Enterprise: industry - publishing & interactive contents
EPIQ	Enterprise
CEDEP	Consortium of enterprises
Empower Limburg	Consortium of medium to large organizations
UNIGE	University
ELSA	University
ALTRAN	Enterprise

In the pilots not only organizations as such participated. For example the ICT-TT pilot contained persons from various educational institutions. The Bulgarian Ministry of Education and Sciences organized the training groups, and provided all the support related to teacher involvement in the pilots, as well as providing facilities for training on the job and pilot experiments in the schools. Also the Digital Cinema-pilot consisted of various individual professionals from various organizations. The other pilots took place in existing organizations. In some of the business demonstrators more than one organization took part. In total the pilots and business demonstrators affected **46 organizations** (see section 2.1).

## 4.3 Range of types of business

In the types of business we see that for the pilots obviously the TENCompetence infrastructure was used for lifelong competence-based education and training. The subjects do vary from English and Catalan language education and basic ICT (Agora), to flood modelling and decision support (UNESCO-IHE), ICT in education (ICT TT), and automatic audiovisual production. This paragraph refers to impact indicator question 38 (see Appendix 1).

The business of organizations involved in the business demonstrators vary from offering services, producing multimedia content, developing e-learning solutions, designing executive development programmes, developing engineering projects, etc. Most of the business is service-oriented. Of course internal competence development and knowledge management were often the reason for piloting the TENCompetence infrastructure as well.

**Table 4.3 Types of business**

<b>Name</b>	<b>Type of business</b>
Agora-pilot	Non-formal training of lifelong learners, especially those who are socially excluded
UNESCO FMM-pilot	Carries out research, education and capacity building activities in the fields of water, environment and infrastructure.
UNESCO DSS-pilot	Carries out research, education and capacity building activities in the fields of water, environment and infrastructure.
ICT TT-pilot	Develops strategies, programs and mechanisms for the implementation of ICT in Bulgarian Education system.
Digital Cinema-pilot	Professionals of the digital cinema and 3D areas; practitioners from the commercial world, academics and future designers in graduate schools.
DobleVia	The cooperative manages public and private services related with “open centres”, social free cyber-coffees called “Telecentres”, recreation centres for children, youth and older people, scholar canteens (cooking and monitoring services), and participation studies for municipalities. The branches involved actually in the pilot are Open Centres, Telecentres, and recreation centres for children.
MIZAR	Multimedia content provider devoted to educational purposes and communication
EPIQ	Designs and produces electronic and electro-mechanical systems and sub-systems. EPIQ provides a wide range of integrated services from product development up to mass production. EPIQ designs and produces high-added-value electronics and electro-mechanical systems and subsystems, which are the control and operating components for end products in the consumer market. EPIQ manufactures, finishes and tests printed circuit boards and supply complete systems and subsystems. EPIQ also supplies the required engineering, research and development (R&D), and logistics management, including JIT and SILS supply.
CEDEP	Design and develop innovative open, company specific and limited consortium programmes for Executive Education
Empower Limburg	Improve employability and mobility of the Limburg labour market through joint regional HRM analysis and planning, training and education activities, and fostering a favourable business infrastructure
UNIGE	Teaching basic principles in web design activity from the point of view of both programmers and designers.
ELSA	Part of the ZEW, the Competence Center for Continuous Education of the University of Hannover. The ZEW develops and provides seminars in the context of adult education for a wide range of institutes in Lower Saxony. Partners include the Architektenkammer Niedersachsen and the International Association for Consulting Competence e.V. ELSA provides extensive support and advice for the deployment of new technology and media in the learning practice.
ALTRAN	Manage and develop projects in practically all the engineering fields.

The categories of educational facilitators is also somehow related to the business models of the organizations. In the pilots facilitators were involved that belonged to the TENCompetence consortium. So here only the business demonstrators pass in review (indicator question 43 of Appendix 1).

**Table 4.4 Categories of educational facilitators involved in the business demonstrators**

DobleVia	Designer of learning resources and activities (content provider)
MIZAR	Content provider
EPIQ	Continuing vocational education and training (cVET)
CEDEP	Business school
Empower Limburg	Not clear (as the demonstrator is still running)
UNIGE	Internal in university
ELSA	Higher education
ALTRAN	Company training and knowledge Management Departments

## 4.4 Objectives of the various pilots and business demonstrators

It is clear that also the aims and objectives of the pilots and business demonstrators varied. Below the objectives pass in review.

- **Agora-pilot**

The participants were expected to reinforce and improve their competence level in English language (Basic and Advanced), ICT and Basic Spanish language according to their interests and needs.

They were also expected to share knowledge and views with the aim of practicing and developing new knowledge.

The types of learning supported by the pilot were the following:

- self-organized learning
- competence development (mainly functional, communication, reflective and social competences)
- knowledge sharing

The aim was to explore new ways to support a wide range of competence development and knowledge sharing for adult lifelong learners.

- **UNESCO FMM-pilot**

The aim of the pilot was to evaluate the TENCompetence environment and pedagogical model in its support of improving competences in Flood Modelling and Management for participants. The pilot worked in a non-European environment where the effectiveness of the infrastructure in a non-Western cultural context could be validated. Through the pilot the link between higher education and Competence Based Learning Networks was created. Learners' results and satisfaction were expected to be higher in this second version of the pilot, which was indeed the case.

- **UNESCO DSS-pilot**

This second type of pilot within UNESCO IHE did resemble the FMM-pilot to a certain degree, but other priorities were chosen. The goals were:

- a) to run a pilot with a completely new content with the learning environment developed by TENCompetence;
- b) to stimulate sharing of expertise, cases, knowledge resources, etc. in order
- c) to support a Community of Practice on Decision Support Systems in River Basin Management;
- d) to have the UNESCO-IHE staff experience and test new learning supporting tools, in the context of a lifelong learning approach.



- ICT TT-pilot

In this pilot the aims were to prove the significance, usability and effectiveness of TENCompetence software platform and methodology, being used for complex competence development programs in authentic learning settings. The use of the TENCompetence platform has significantly improved the way teachers learn and apply the I\*Teach methodology.

- Digital Cinema-pilot

From the point of view of the individual learners, it was expected to develop competences associated to the use of new tools in the area of digital cinema and 3D according to their professional needs. From the perspective of the organizations, the expectation was to train professionals in the use of their tools (so that they disseminate the knowledge they are producing) and to achieve a complete training package enhanced iteratively according to the professional feedback obtained in the pilot. Both expectations were realized.

- DobleVia

The main aim of the demonstrator was to support DobleVia's employees in their competence development regarding the profiles required by the organization. The demonstrator pilot also aimed at offering opportunities for internal promotion, making possible, for example, to monitor the development of the required competences. This was done by finding tools that provide personalized competence development plans to all their workers with a low cost. DobleVia needed flexible solutions to support the competence development of new hired employees, in such a way that the training is centralized and integrated in the intranet. Collaboration tools for learning in working groups were also relevant for DobleVia.

- MIZAR

MIZAR has developed and centred its interest on the lifelong learning by means of developing materials and dissemination for other companies and editorials, and with the TENCompetence new tools own services were developed for further dissemination and consolidation of its own language courses.

There were many objectives:

Being aware of the importance of the lifelong learning nowadays, Mizar wanted to develop the platform for the lifelong learning of the Spanish that gathers the opportunities that the new technologies offer, with an approach for competences, adapting them to the different persons and situations, and from a more multicultural point of view.

The use of the services and tools of TENCompetence was an opportunity that allowed the distribution and management of resources for specific purposes and singular contexts of lifelong learning and overcoming the barriers of space and distribution, as well as reinforcing the competitive current strategy.

In this sense, another objective was to experience and develop a learning platform focused on a competence approach, because it was an opportunity to reach the "individuals" (learners) directly,

Other objectives that we had were:

- To know the educational needs of future clients. To know the type of learning they would choose in order to develop new skills.
- The pilot was an opportunity for Mizar for offering Spanish training services to tutors and to learners, what means to develop its own service for further dissemination of its own language courses with the TENCompetence new tools.
- The pilot was the way to have more information about the motivations of the learners in the Spanish language learning and to evaluate how much they would accept to pay, so the costs and revenues could be evaluated.
- To test the TENCompetence tools as a platform to develop a business model for the future.



- EPIQ

The EPIQ business demonstrator aimed at developing a pilot implementation of the innovative TENCompetence organizational and technological infrastructure to support:

- the *EPIQ management* in the adoption of the 'competence' concept as a base for all Human Resource related processes and activities (Recruitment & Selection, Performance Management, Training & Development, Succession Planning and Capability Mapping, Assessment Centre Design and Establishment) as well as
- a variety of *professional communities and individuals* for stimulating personal competence development and knowledge sharing in an enterprise context.

The infrastructure was to be used as an environment that stimulates self-directed learning and self-organization, production of knowledge, instead of consumption, learning activities, instead of learning objects, and knowledge sharing between participants in the various EPIQ communities of practice

- CEDEP

TENCompetence Tube was expected to have a high potential to provide CEDEP participants with an attractive, interactive platform for extending their learning and networking beyond the classroom experience that CEDEP offers them. Thus the CEDEP business demonstrator focused on the following objectives:

- (1) Increase the proficiency level of participants' management competence and experience between modules, between programmes, and after CEDEP.
- (2) Nurture and strengthen the cross-cultural cross-functional professional network developed while at CEDEP, and
- (3) Make it fun and simple for participants to share their experiences of implementing ideas from CEDEP programmes in their company, keep up-to-date with new developments in relevant managerial topics, and keep in touch with each other.

TENCompetence Tube supports the "community of practice" type of learning (i.e. voluntary knowledge exchange).

- Empower Limburg

The aim of the Empower Foundation is to improve employability and mobility of the Limburg labour market through joint regional HRM analysis and planning, training and education activities, and fostering a favourable business infrastructure. The specific aim of the business demonstrator is to improve mobility of middle managers between the partner organizations. The aim of the demonstrator was to upgrade the level. Specific job profiles were addressed: 'Operational Manager', 'Tactical Manager', 'Human Resource Manager', and 'Senior Human Resource Manager'.

The aim was that the end of the pilot the participants should have:

- decreased their competence gaps related to the profile they selected at the start of this pilot
- extended their professional network through participation in their profile community
- increased their mobility through secondments/internships

Learning opportunities included specially designed non-formal learning activities at one of the other partner organizations (internship); specially designed non-formal learning activities at one's own work place; and formal courses and training activities.

- UNIGE

The aim was to experiment the TENC tools on e-learning and collaborative work and evaluate possible benefits with regard to

- instructed education and training
- self-organized learning
- knowledge management (mandatory knowledge exchange)

- **ELSA**

The research design described the approach for the study and the proceeding. All necessary steps and instruments (questionnaires, methods/procedures, etc.) were itemized. Central research questions were:

- Will the students use LearnWeb 2.0 for the self-directed learning?
- Which features of LearnWeb 2.0 will be used? What are the most significant tools?
- Use students the possibility for cooperative learning with Learn-Web 2.0?

The following types of learning were supported by LearnWeb 2.0:

- instructed education and training
- self-organized learning
- knowledge management (mandatory knowledge exchange)

- **ALTRAN**

Altran indicated as main objective to study the advantages offered by the TENCompetence solutions when compared to the traditional systems used to manage CVs or those based on knowledge maps.

## ***4.5 Relation of use cases to the working processes and job positions in the organization***

As described in section 2.2 the 7 project use cases were covered in the pilots and business demonstrators. When related them to the working processes and job positions in the organization, the qualitative impact is partly composed of the influence of senior staff and decision-makers within the organizations. Below an overview is given of the different persons and their roles within the organizations. We see that in all cases staff or management was involved.

- **Agora-pilot**

There were a total of 138 participants in the pilot and their roles are the following (some participants had more than 1 role):

- Staff testing the TENCompetence tools in the school: 3 (UPF) + 5 (participants/users/expert)
- Content developer (English + Spanish competence profiles) + Expert/study adviser + competence assessment provider + Staff collecting data from questionnaires: 1 (Àgora)
- Content developer (ICT competence profiles): 2 (UPF)
- Competence providers: 2 (Àgora) + 2 (UPF)
- Staff providing technical support to learners/ Experts + Observers (usage of the software) + Focus group experts: 7 (Àgora) + 3 (UPF)
- Focus group participants : 6 participants (Àgora) + 2 (UPF)
- Participants/users: 138 learners developing Spanish, English or/and ICT competences (including the participants who did not complete the pilot)
- Pilot evaluators: mainly persons from UvA, UPF and OUNL

- **UNESCO FMM-pilot**

The different possible roles involved in the pilot from its design until its completion and the estimated number of persons that played each role were:

- Staff installing the software in Sofia - 1 person
- Developer of GUI container linking to TENCompetence tools (in Sofia) - 2 persons
- Content developer - 2 persons (UNESCO-IHE)
- Competence provider - 2 persons (UNESCO-IHE)
- Competence assessment provider - 2 persons (UNESCO-IHE)

- Staff providing technical support (help-desk) - 2 persons (UNESCO-IHE) + 1 person (Sofia)
- Learner - Registered young to Mid career Water Professionals from all over the world (Europe, Africa, Middle East, Asia, Latin America)
- Tutor/coordinator/mentor/study advisor - 4 persons (UNESCO-IHE)
- Expert - 1 expert(UNESCO-IHE)
- Assessor - 2 persons(UNESCO-IHE)
- Preparation and implementation WebSurvey evaluation -1 person (UNESCO-IHE)
- Pilot evaluator - 3 persons (UvA, OUNL and UPF members)

- **UNESCO DSS-pilot**

The different possible roles here were:

- Installation of TENCompetence software and technical support in Sofia: Sofia University - 1 person
- Developer of GUI container linking to TENCompetence tools: Sofia University - 2 persons
- Competence provider + Content developer + Content Provider + Tutor / advisor : UNESCO-IHE - 6 persons
- Advisor+ technical support: UNESCO-IHE - 2 persons
- Learner - Registered young to Mid career Water Professionals from all over the world
- Preparation and implementation Web Survey evaluation: UNESCO-IHE - 1 person
- Pilot evaluator - UvA, OUNL and UPF members

- **ICT TT-pilot**

The following roles existed in this pilot. There was no overlapping of functions.

- Requirements analyst – 2 persons,
- Architectural designer – 2 persons,
- Interface/interaction designer – 1 person,
- System manager (with help-desk functions) – 2 persons,
- Pilot designer and evaluator – 2 persons,
- Trainer – 10 persons,
- Learning technology expert – 2 persons,
- Business manager - 2 persons,
- Services provider – 4 persons,
- Learners – 300 persons.

- **Digital Cinema-pilot**

The roles involved in the pilot included

- developer of the GUI container linking to TENC tools: one person from UPF
- content developer: four persons from UPF
- competence provider: two persons
- competence assessment provider: four persons from UPF
- staff providing technical support: two persons, one expert
- learners
- expert: same as competence providers
- researchers and pilot evaluators: persons from UPF, UvA and OUNL

- **DobleVia**

DobleVia has acted as a user organization which has worked around competence development plans associated to three different profiles: Educator, Monitor and Informer. The main roles involved in the demonstrator were:

- System manager: in charge of the GUI container integrating TENCompetence tools, and acting as help-desk assistant

- human resource manager: competence assessment, competence-development plans provider
- learning technology expert: providing support with the learning resources
- employees

DobleVia identified the need of improving a competence, and then organized the training. In punctual occasions DobleVia had also to providing training activities for developing new competences (e.g., they had to cover “new” summer socio-educative services...)

#### • MIZAR

In general, the working processes and job positions in the organisations didn't change. Mainly, what have changed are the linguistic and pedagogical model and the learning sequences.

The following roles were distinguished with regard to the MIZAR business case:

- requirements analyst,
- developer adapting and configuring the infrastructure,
- software tester,
- pilot designers and evaluators,
- trainer,
- public relations officer,
- pedagogical and content experts,
- learning designer,
- content developer,
- business manager,
- competence provider,
- competence assessment provider.

#### • EPIQ

The following roles and persons took part. Some persons had overlapping roles.

- Pilot designer & evaluator + Requirements analyst + Competence manager + Learning technology experts + Trainer / Subject-matter expert – 2 persons
- Pilot designer & evaluator + Trainer / Subject-matter expert – 1 person
- Requirements analyst - 1 person
- Competence manager/ Human resource manager + Learning technology experts (learning designer, content developer) + Performance manager/Assessor - 4 persons
- System administrator (also help-desk functions) – 2 persons
- Learners – 16 persons
- Trainer / Subject-matter expert + Performance manager/Assessor - 9 persons

In addition EPIQ specified the different use cases quite extensive:

Assessing competences	<p>Assess competence is the process whereby the learners' level of a competence is measured by an assessor, by assessing:</p> <ul style="list-style-type: none"> <li>- the results of learning activities</li> <li>- the gap between the previously obtained and recognized competences and the desired competences</li> <li>- the competences to obtain, which are part of a competence development programme.</li> </ul> <p>Methods for assessment of competences can vary from several forms of performance assessment such as, peer assessment, self-assessment, portfolio assessment, 360 degree assessment etc., combined with the more traditional forms of assessments such as multiple choice questions, fill in the blanks,</p>	<ul style="list-style-type: none"> <li>• Recruitment &amp; Selection</li> <li>• Performance Management</li> <li>• Training &amp; Development</li> <li>• Succession Planning and Capability Mapping</li> <li>• Assessment Centre Design and Establishment</li> </ul>
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	and multiple response questions. All preparations, evaluation and reporting of results are part of the assessing competence use case.	
Plan a route	Plan route presents the learner with the best possible sequence of learning activities in order to obtain a certain competency/learning objective. The learner receives a roadmap by which he or she can navigate efficiently through the various learning activities. A study advisor can help the learner define the sequence of learning activities.	<ul style="list-style-type: none"> <li>• Performance Management</li> <li>• Training &amp; Development</li> <li>• Assessment Centre Design and Establishment</li> </ul>
Build Competence Development Program	Build Competence Development programme presents the learner with the set of learning activities which he or she has to perform to attain the competences for a certain function/job/diploma. The competence development programme presents the learner with the whole list of learning activities to conduct in order to become e.g. a senior test engineer or project leader, a master in psychology etc. A competence manager helps the learner to find and understand the needed competences.	<ul style="list-style-type: none"> <li>• Performance Management</li> <li>• Training &amp; Development</li> </ul>
Provide Support	The provision of support helps the learners to conduct the learning activities. This support can take many forms, such as coach, tutor, helpdesk, peer assistant, FAQ's, support agents etc.	<ul style="list-style-type: none"> <li>• Training &amp; Development</li> </ul>
Conducting Learning Activities	Conducting learning activities means the actual undertaking of courses, lessons, e-Learning, traineeships (by a learner) or any other activity to achieve a certain learning objective (competence, skills, knowledge, and attitudes). Usually a learner conducts several learning activities to obtain a learning objective.	<ul style="list-style-type: none"> <li>• Training &amp; Development</li> <li>• Assessment Centre Design and Establishment</li> </ul>
Develop Learning materials	Learning materials are all the materials needed by a learner to learn. These materials include books, articles, HTML pages and computer programmes among others. The development of learning materials is supported as is the need to find appropriate learning materials in knowledge management (learning objects) repositories. The learning materials are usually developed by subject matter experts/content authors.	<ul style="list-style-type: none"> <li>• Training &amp; Development</li> <li>• Assessment Centre Design and Establishment</li> </ul>
Manage Personal Competence Management System 2.0	The Personal Competence Management System is the software package of the integrated TENCompetence system. All development work within TENCompetence adds to this, making it TENCompetence's primary software package. 'Manage PCM' entails the management (installing, running	<ul style="list-style-type: none"> <li>• Recruitment &amp; Selection</li> <li>• Performance Management</li> <li>• Training &amp; Development</li> <li>• Assessment Centre Design and Establishment</li> </ul>

	and monitoring servers) and maintenance (installing software patches and updates) of the software in order to provide a durable facility to end users. This work is usually done by an operator.	
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- CEDEP

The different roles involved in the CEDEP business demonstrator included:

- 1 professor (INSEAD) - run face-to-face sessions, content provision, overall project management
- 1 senior researcher (INSEAD) - evaluation and documentation, content provision
- 1 junior researcher (INSEAD) - help with setting up tool, user manual, evaluation, content provision
- 1 software developer (INSEAD) - setting up and maintaining the tool
- 1 project coordinator (CEDEP) - key contact person
- 1 IT Manager (CEDEP) - provides all IT assistance on CEDEP side, website link, hardware, etc...
- 1 IT Assistant (CEDEP) - helps IT manager, help with video making
- Learners (CEDEP) - 94 GMP participants
- Company Representatives (CEDEP) - about 30
- Alumni (CEDEP) -15

- Empower Limburg

The following activities and related roles were performed in executing the demonstrator:

- Project management by a part-time project manager from one of the participating organizations.
- Competence profile development by HR professionals from eight partner organizations, moderated by OUNL
- Online tools configuration (TENC PDP and LifeRay portal) by OUNL system manager
- Tools-Helpdesk by OUNL system manager
- Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by OUNL's Faculty of Management Sciences
- Tutoring of the blended 'mini modules'
- Internship coordination by a part-time coordinator from one of the participating organizations
- Career coaching by three part-time coaches from the participating organizations.

- UNIGE

The business demonstrator had in total 55 participants

- teachers, students, assistants for exercises.
- Content developer + Content provider + Tutor/advisor + Assessor: 2
- Tutor/advisor + Preparation and evaluation: 2
- Tutor/advisor: 3
- Learners: 15

- ELSA

The following persons and roles were involved. The roles of content developer, community creator and tutor were combined

- staff installing the software: 1 person
- content developer: 1 person (Elsa)
- community creator: 1 person
- staff providing technical support (help-desk functions?): cooperation Elsa/UHANN (L3S)
- learner: approximately 30 persons
- expert: 1 person



- tutor/teacher/coordinator/mentor/study advisor: 1 person
- researcher: 1 person
- pilot evaluator: 2 persons (L3S)

- ALTRAN

These were the persons and (combined) roles within this business demonstrator.

- Manager – 1 person
- Human Resource Responsible/Competence manager – 1 person
- Learning technology experts (learning designer, content developer, teachers)- 2 people
- Engineers- 4 people

## 4.6 Continuation with the TENCompetence approach

Here the question was how many of the authors, assessors, facilitators, and other actors (excluding learners) would like to continue with the TENCompetence approach (indicator question 43 of Appendix 1). Four of the organizations (DobleVia, CEDEP, EPIQ, Empower Limburg) involved in the demonstrators want to continue using the TENCompetence approach, two are undecided, one needs more time in order to take a decision, and one (Altran) is not willing to keep using the TENCompetence tools.

**Table 4.5 Answers to continuing with the TENCompetence approach**

DobleVia	All the roles involved in the pilot agree on saying that they would like to continue using the TENCompetence approach, and extend it to all the profiles or business lines considered in the organization.
MIZAR	<p>Mizar was undecided to continue with the TENCompetence approach. While believing that the approach is very interesting and has much potential, but we find some weaknesses in order to continue with it:</p> <ul style="list-style-type: none"> <li>- The objective was to provide a service for the self-learning language and therefore the service must respond to many needs, levels and different interests. People who could participate would be from all over the world, with many different contexts and situations. Therefore, the collaborative and social component should be much more important (being able to create different groups of interests), and needs a tool very adaptable and upgradeable, and easy to handle.</li> <li>- Similarly, it might be necessary to include all types of resources that could be offered within the tool, without leaving it, including automatic self-correcting activities that would allow monitoring and self-assess the results and the improvement.</li> <li>- During the pilot, it has been seen that the public appreciates further guidance in their learning, because they feel disoriented, still learning a language (especially for novices) is sometimes conceived as guided and sequenced, and is not used to pay for online resources if the resources is not associated with some form of service (tutoring) and certification.</li> </ul> <p>All these points make the business less viable.</p>
EPIQ	24 of the 28 participants (86%) like to continue with the approach, the other 4% is undecided
CEDEP	CEDEP plans to continue to try to find the best way to integrate TENTube in Executive Education. This experience has shown us that many participants come from companies with no collaboration culture.

	<p>We are asking them to do something new. If we want to motivate executives to use Web2.0 technologies, we need to first show them the value of collaboration, and then show them environments in which to experiment. This is why we think the way forward is to de-emphasize GMPTube and put more weight on the concept of “collaboration” and the fact that this is an area in which we are seeing lots of changes and developments facilitated by modern technology with important implications on all industries and management functions. Our new approach will be to:</p> <ol style="list-style-type: none"> <li>1. Start with a collaboration game - EagleRacing (the experience part),</li> <li>2. Address explicitly the subject of Collaboration Dynamics: Opportunities, Barriers and Levers in Organizations (business value),</li> <li>3. Address the issue of Collaboration among themselves (GMPTube, LinkedIn, etc. with structured exercises they can go through).</li> </ol> <p>This course should be positioned as a key management subject, with 1 and 2 covered in a 1-day slot of the executive programme, and 3 in follow-up evening sessions.</p>
Empower Limburg	Empower Limburg wants to keep using the TENCompetence approach, but not the TENCompetence tools (they partly want to rebuild the TENC tools in their own infrastructure).
UNIGE	Not clear (as the demonstrator is still running)
ELSA	All participants are undecided; on the one hand the tools need to be improved in terms of usability, on the other hand new learning practices need to be developed.
ALTRAN	All were negative. The definition of all possible professional profiles in the company is too big to develop it with the TENCompetence tools in a reasonable time. The tools require too many hours of definition work. Besides this, constant support to the users is needed. Some of the main uses that Altran wants to give to these tools were not supported, at least in the versions used in the pilot.

## 4.7 Appreciation of TENCompetence experiences

Here the question was how authors, assessors, facilitators, and the rest of the roles (excluding the learners) appreciated their experience based on TENCompetence (indicator question 44).

**Table 4.6 Appreciation of the TENCompetence experience**

DobleVia	In general terms all persons are satisfied with the pilot using TENCompetence tools. However, they discussed the simple approach used in the created activities.
MIZAR	From the authors, the participants (4) appreciate their experience based on TENCompetence but they felt that it was a bit disappointing: all agree that it was a positive experience to have (to shift from a content-based approach to a competence-based approach), but the real experience with the tools and the real users was not completely satisfactory.
EPIQ	All were positive
CEDEP	Although the short exposure to GMPTube did not trigger the desired learning-orientated motivation, executives from several large companies have expressed interest in applying it internally in their companies as a way to connect groups such as marketing people, creative people and IT professionals, rather than using it to exchange

	knowledge with classmates.
Empower Limburg	40% is positive, another 40% neutral, 7% is negative, while 13% has no opinion
UNIGE	Not clear (as the demonstrator is still running)
ELSA	All were neutral. It was mentioned that the use of LearnWeb 2.0 needs to be planned well in advance. Further, the communication facilities provided by the software need to be improved.
ALTRAN	All were positive. The profile and competences definition concepts are considered as very positive offering grate possibilities to the categorization of the staff and the preparation of learning paths.

## 4.8 Influence on the provider

The question here was how the setting-up of the business demonstrator has affected the provider. As an example the following was given:

- an educational institution may have shifted from a content-based approach to a competence-based approach;
- another provider may have used distance learning for the first time, etc

This is indicator question 45 of Appendix 1.

**Table 4.7 Influence on the provider**

DobleVia	After the pilot, two important changes in the organization can be observed: in the one hand, the intranet has a “formation module”; this completes the idea seriously for the “employee portal”, seeing that the lifelong formation is another “task” in their job. In the other hand, DobleVia has recovered the tradition of the use the 3% of the working time to be devoted to learning.
MIZAR	The most important change was to shift from a content-based approach to a competence based approach. Consequently, it also affected on having to adapt the contents to the TENCompetence tools and approach. It was also realized that if wanting to develop a distance learning service, the strategy of covering each competence profile must change from what we usually do: <ul style="list-style-type: none"> <li>- The practice (activities) remains in second place, learners do not seek completeness, and instead they do more emphasis on the design and the level of interactivity.</li> <li>- They don’t want much practice, even if it is the only way to consolidate learning. They want to “treat” more competences.</li> <li>- If we want them to pay, we have to look for the essential motivation to do so. For example, we already saw that the tutors would be an interesting target because they value resources and improving their performance on their job; moreover, they can understand the instructions and hold a conversation in Spanish.</li> </ul> Therefore, the setting-up of the pilot affected not only for the adaptation to the tool and the content, but also for the linguistic and pedagogical strategy to implement.
EPIQ	The EPIQ training department has delivered traditional topic-based onsite corporate training that was time-consuming and a better effectiveness is desired. There is no centralized knowledge management system or a digital repository of learning resources available. Very detailed materials, instructions and training plans are

	<p>available though. There is narrow focus on ICT tooling &amp; innovation. There is a lack of tailored virtual learning support. Traditional training practices provide too little effective and efficient support to the users. The availability of support is crucial for effective task performance. Old pedagogical and organizational models for learning do not meet the demands and possibilities of lifelong competence development and the new learning technologies that are available.</p> <p>The value of the TENCompetence concept and the Personal competence management system, applied in the business demonstrator, are estimated by the EPIQ management as a needed innovation that stimulates the shift to competence based training supporting organisational knowledge capturing and exchange, where human knowledge is created and expanded through social interaction.</p>
CEDEP	<p>Has not really affected CEDEP yet except for the fact that they have added a new course which covers an IT subject, Collaboration and Web2.0, to their GMP course offering. They previously did not have any IT subject in their course offering. They will also be hosting a Symposium in December "Inter-Organizational Learning and Competence Development: Web 2.0 Experiences and Trends" which will help publicize our work in the TENCompetence project. So they are taking a more active role in this area.</p>
Empower Limburg	<p>TENCompetence positioned itself as facilitator in the competence definition process, and later on in the pilot as tool-provider for the PDP and later again as Liferay provider. The Empower pilot also was a first-time trial. As such it is difficult to distinguish between the 'Empower innovation' and the 'TENCompetence innovation'</p>
UNIGE	<p>The following was realized by installing a knowledge management system.</p> <ul style="list-style-type: none"> <li>– community of practice across organization</li> <li>– self-organized learning</li> </ul>
ELSA	<p>Support of informal learning in a formal learning context</p>
ALTRAN	<p>Enabling personalized learning</p>

## 5. Impact on business opportunities

As mentioned in the Introduction these type of impact indicators have been analyzed in combination with work package 10. Performing business demonstrators was one of the many actions we undertook to involve external companies and organisations in TENCompetence. In this chapter we analyse the impact the business demonstrators had on the companies and organisations from the perspective of the business opportunities. Six questions about business opportunities were used for the analysis, see questions 46-51 of Appendix 1.

1. Business model(s) or cases shown in the demonstrator;
2. Business model(s) or case(s) potentially possible with the TENCompetence ideas though not demonstrated;
3. Estimation of resources (external to TENCompetence project) invested in carrying out the demonstrator;
4. Plans to use TENCompetence beyond November 2009;
5. Decision to install TENC tooling in their own servers or subcontract the hosting, etc; and decision to customize the TENC tooling to adapt it better to their organization (e.g., styles, integration with existing tooling in the organization);
6. Impact from the perspective of the implementers

The companies and organisations found it difficult to answer these questions. This was mostly related to the nature of the business they are active in and the time frame available. Some never had to think of business opportunities in such a way that when piloting a new software tool they also had to think of the impact this software tool was causing for their organisation. Therefore work package 10 was available for help and asking questions. Despite this support not all companies and organisations succeeded in giving a clear answer, and therefore also a clear view on their business opportunities. Within this section we give an overview of the most relevant and most important business opportunities, the companies and organisations were able to identify when looking back at their performed business demonstrators.

### 5.1 Business model(s) or cases shown in the demonstrator

The first question we asked the implementers was if they were able to identify one or more business models or business cases while performing the demonstrator. A summary of the answers is collected in Table 5.1.

**Table 5.1 Types of business models shown in the demonstrator**

<b>Business Demonstrator</b>	<b>Business model(s) shown in the demonstrator</b>
Mizar	Content providers who want to extent their business model by also having an e-Learning platform to deliver competence development/learning paths in their area of context, Spanish language learning
DobleVia	Internal training and knowledge management
Centre of Excellence for Mechanical Engineering of Altran	Internal training and knowledge management
Empower Limburg	Retain high quality professionals for the region and to balance staff needs between organisations over time by improving mobility.

Cedep	Stimulate knowledge exchange, collaborative learning and effective competence development in online communities
Epiq Electric Assembly	Internal training and knowledge management
Elsa	Increase the presentation of portfolio tools for their cooperating partners
UniGe	Mostly internal focussed on community of practice across the organisation and focussing on self-organised learning

From this table we can conclude that the most mentioned business model or business case identified by the implements is internal training and knowledge management. In other words the implementers experienced that the TENCompetence infrastructure supported them with their internal training actions and offering for their personnel. In almost all business demonstrators the business benefits were seen as something internal. The Empower Limburg demonstrator identified the external benefit of retaining high qualified personnel for the region and for the participating organisations. This relates to the nature of the demonstrator which focuses on reducing HR costs for the participating companies. In a certain way the UniGe demonstrator also identified this business model but then focussed on the communities of practise within its organisational departments.

## 5.2 Business model(s) or case(s) potentially possible

Almost every business demonstrator qualified this question as not applicable. DobleVia does seek other possible business cases. These are related to the TENCompetence ideas and to reinforce the Human Resource already existing DobleVia tooling by tightly integrating the PDP with their CV module in the Intranet.

DobleVia is also exploring to extend the piloting activities in the inter-cooperation with other cooperatives. For example, DobleVia is collaborating with 6tell (socio-educative services for kindergartens) who uses competence profiles and competences to structure their services but without software support.

When considering the pilots, Agora is also willing to keep using TENCompetence looking for additional resources. The main areas to be treated would be mainly the same as during the pilots, i.e. competence development in ICT, English and Spanish for foreigners which are the areas of most needs. The users would use the web PDP in the computer room of the school in the framework of the self-training sessions (in the free access hours). Agora says that they will develop additional content and there will be always a person of support in the self-training sessions to help the users with any query. Agora also requests further training and technical support in order to be able to deploy the improved tools, etc.

UNESCO-IHE is also currently defining new business models which include the provision of separated, smaller learning actions that take part of larger competence development learning paths. This will facilitate the creation of communities of practice and reduced the costs for potential students that already master some of the competences of the competence profiles.

## 5.3 Estimation of resources invested in carrying out the demonstrator

With this question we identify the extra costs (external to TENCompetence project and the regular activities of the organizations) a company or organisation bears when carrying out the demonstrator with implementing the TENCompetence infrastructure. The extra costs are the



most clear when looking at the extra man hours or person months involved when carrying out the demonstrator.

**Table 5.2 Recourses invested in the business demonstrator**

<b>Business Demonstrator</b>	<b>Estimation of resources invested in carrying out the demonstrator</b>
Mizar	A person to adapt and update the content that Mizar was already owning and commercial force for attracting learners/participants of the demonstrator.
DobleVia	The human resources involved has been: 35 hours of the Responsible of Human Resources 10 hours of the Quality Responsible 2 hours of the 5 administration board members 4 hours of the 5 employers. The material resources was been the use about 5 hours of two computing rooms of the organization.
Centre of Excellence for Mechanical Engineering of Altran	8 persons were involved in carrying out the demonstrator
Empower Limburg	<ul style="list-style-type: none"> <li>• Project management by a part-time project manager from one of the participating organizations. 1 day/week</li> <li>• Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by OUNL's Faculty of Management Sciences. 1 week of work</li> <li>• Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by Hogeschool Zuyd. 1 week of work</li> <li>• Internship coordination by a part-time coordinator from one of the participating organizations.</li> <li>• Career coaching by four part-time coaches from the participating organizations. 4 weeks of work</li> </ul>
Cedep	The work has been performed by the people who were already taking part in the TENCompetence project
Epiq Electric Assembly	<p>EPIQ invested company resources in the form of:</p> <ol style="list-style-type: none"> <li>1. New IT infrastructure establishment – 4 new laptops, 1 server</li> <li>2. Staff involvement (company paid working days) for participation in the following events: <ul style="list-style-type: none"> <li>• Monthly face-to-face Resource panel working &amp; training seminars 5 x 4 people = 20 working days;</li> <li>• Weekly face-to-face Resource panel working &amp; training seminars 15 x 3 people = 45 working days</li> <li>• On-site technology-enhanced and face-to-face training seminars: 2 x 28 people = 56 working days;</li> </ul> </li> </ol> <p>EPIQ staff – personal competence development (on-line training supported by the TENCompetence infrastructure): 28 people x 4 hours (per person, on average) = 14 working days</p>
Elsa	The work has been performed by the people who were already taking part in the TENCompetence project
UniGe	Two person months

In the table we see that most of the demonstrators have put significant extra hours in supporting the business demonstrator. We also can make the relationship between the hours and the number of participants of the business demonstrator. With large business demonstrators like DobleVia and Epiq Electric Assembly we see that they invested a lot of hours in supporting the demonstrator. Relative small demonstrators like Empower Limburg and UniGe were able to cope with less additional resources.

## 5.4 Plans to use TENCompetence beyond November 2009

From a Foundation point of view we were interested in asking the companies and organisations performing a business demonstrator if they have made any plans to continue the use of the TENCompetence infrastructure. After doing business demonstrators they are the perfect target group to question the quality and added value of TENCompetence.

**Table 5.3 Plans to use TENCompetence beyond November 2009**

<b>Business Demonstrator</b>	<b>Plans to use TENCompetence beyond November 2009</b>
Mizar	Mizar has no specific plans to use TENCompetence beyond the end of the project. Mizar identified a number of issues that condition the usage of TENCompetence in the future. Examples of these issues include: 1) the tools should be more tightly integrated, 2) include automatic tools for self-assessment, 3) more collaborative tools, 4) enhance user-friendly aspects and facilitate customization according to brand images.
DobleVia	DobleVia doesn't specify specific plans to use TENCompetence after the end of the project. Instead of this they identified a roadmap which contains a set of elements: <ul style="list-style-type: none"> <li>• To continue working in natural small groups to obtain a representation of all branches of the business.</li> <li>• To propose work sessions to the team leader to focus and direct the issues for the working hours devoted to learning (with or without explicit related competences).</li> <li>• To order the creation of activities to external professionals if the potential users inside the organization take actual advantage of those activities.</li> </ul>
Centre of Excellence for Mechanical Engineering of Altran	The Centre of Excellence for Mechanical Engineering of Altran has no plans to use TENCompetence after the project has ended.
Empower Limburg	Empower Limburg has no plans to use TENCompetence after the project has ended.
Cedep	Cedep is planning to continue using the functionality of the TENCompetence Tube.
Epiq Electric Assembly	Epiq indicated that they will continue the usage of the TENCompetence infrastructure as the project has ended. No further details have been given.
Elsa	The Elsa sees good uses of LearnWeb 2.0 in their offerings, in particular in optional courses and learning activities in which students have sufficient freedom for exploration and testing. However, first the usability of the tool needs to be greatly improved. Further, some time is needed for the transition.
UniGe	UniGe has plans to continue to make use of TENCompetence after the project has ended. No further details have been given.

From the eight companies and organisations taking part with a business demonstrator, three of them identified that they continue using the software tools of TENCompetence. The Elsa answered that they see potential in a specific tool of TENCompetence but not earlier than after the usability of the tool has been improved. Four participants answered that they won't continue with the TENCompetence infrastructure after the end of the project for a number of reasons. Where Mizar provides some recommendations like more integration between the respective TENCompetence tools and enhance the user friendliness. The comments and suggestions of Mizar have been used to further improve the TENCompetence infrastructure and have led to a better understanding of the needs of the target groups of TENCompetence.

## 5.5 Decision to install and customize the tooling

When talking to companies and organisations who visited the TENCompetence stands at the several Human Resource conferences we were present at, one of the main questions these companies were always asking about was the possibility to use the TENCompetence infrastructure within their own closed and secured environment. This was the trigger to also question the business demonstrators about the installation procedure of the TENCompetence tooling. In the next table a 'yes' means that they installed the tooling on their own secured environment. A 'no' means that they did not install a tool since they subcontracted the hosting. And a 'not applicable' means that they no installation of the TENCompetence tooling was needed since they may use of existing environments on the web.

**Table 5.4 Installation of TENCompetence tooling**

<b>Business Demonstrator</b>	<b>Yes</b>	<b>No</b>	<b>Not applicable</b>
Mizar			X
DobleVia	X		
Centre of Excellence for Mechanical Engineering of Altran		X	
Empower Limburg			X
Cedep			X
Epiq Electric Assembly	X		
Elsa			X
UniGe	X		

From this table we see that when the content being used in a demonstrator is used for internal purposes and is also qualified as confidential, also the TENCompetence tooling is installed at an internal secured server. Were demonstrators whose information is not private but shared with communities across the world it is not necessary to install a personal or organisational environment. The already existing installations on public servers can be used for these demonstrators.

Mizar Multimedia and DobleVia comment that customization is necessary for instance to obey the internal house style logos and colours. Where Mizar notes that the costs in time and money will also play an important role here.

Cedep already customized the TENCompetence Tube for their business demonstrator and renamed it to GMPTube. UniGe has also customised the tooling and is currently improving the tagging and authentication system.

## 5.6 Impact from the perspective of the implementers

Table 5.5 collects the impact reached from the perspective of the implementers of each specific business demonstrator. In the description of the demonstrators provided by the implementers before set-up the pilots, some of them mentioned one or more results with which they would consider their demonstrator a success. After the implementation of the pilot experience, they valued to what extent they reached the desired results. Overall, this table shows that for most of the implementers the business demonstrators have been a success to a large extent. In the cases where the levels of success have not been satisfactory enough, the implementers provide comments (e.g., what has to be done in order to make it more successful in the future, the expectations were not correctly aligned with the TENCompetence approach, the participants or their context is still not prepared enough in order to use the approach proposed).

**Table 5.5 Impact focused on the specific business demonstrator**

Pilot /BD	Could you mention one or more results with which you would consider your demonstrator a success?	Success criteria of the business demonstrator met (whether the demonstrator is a success according to their own criteria)
MIZAR	Identify a potentially successful business model for MIZAR. The aim is to develop the platform for the lifelong learning of the Spanish that gathers the opportunities that the new technologies offer adapting them to the different persons and situations	We wanted to integrate the online new service through TENCompetence that had to complement its actual services and content developments, in order to reinforce the services that Mizar gives to their clients and to the final learners. The experience was very interesting, but we realized that: About the Spanish as second language market online: <ul style="list-style-type: none"> <li>- Difficulties of having revenues if there is not a great component of service (guidance and follow up functionalities)</li> <li>- Little disposition to pay for it unless there is a large component of personal service</li> <li>- Need to invest on a commercial and marketing action.</li> </ul> About the tool: <ul style="list-style-type: none"> <li>- Difficulty to adjust the tool to our particular needs without a developer (possible with Liferay portal, but not the PDP tool integrated as an iframe)</li> <li>- The different tools must be integrated in order that the learner feels that they are related.</li> <li>- Difficulty of managing learners and micropayments (<i>micropagos</i>)</li> </ul>
DobleVia	<ul style="list-style-type: none"> <li>- Implement and extend the use of part of the working hours for competence development</li> <li>- Integrate the use in the company of "competency profiles" in the job analysis and personnel selection</li> <li>- Encourage employees to self-assess</li> </ul>	<i>Implement and extend the use of part of the working hours for training:</i> Success. The groups participating in the demonstrator have acquired the habit of use the 3% of their working time. <i>Integrate the use in the company of</i>

	<p>their competences</p> <ul style="list-style-type: none"> <li>- Evaluate "how" lifelong learning can be offered by the company to its workers</li> <li>- Find a technology that allows DobleVia and the employees an analysis of what can be achieved in terms of competence development:</li> </ul> <p>Requirements of the technology:</p> <ul style="list-style-type: none"> <li>- structure the development of competences</li> <li>- include activities to acquire skills</li> <li>- is integrated into the corporate Intranet</li> <li>- link the competence development outcomes to workers' CVs</li> </ul>	<p><i>"competence profiles" in the job analysis and personnel selection:</i></p> <p>Success. The demonstrator included the definition of 3 competence profiles and DobleVia is now using a strategy based in this method to evaluate new employees.</p> <p><i>Encourage employees to self-assess their competences</i></p> <p>Success. The competence profiles have been communicated to employees so that they have more tools to assess their strengths and weaknesses regarding their current working tasks. The demonstrator has provided the DobleVia employees an opportunity to be aware about the need of lifelong learning.</p> <p><i>Evaluate "how" lifelong learning can be offered by the company to the workers:</i></p> <p>Success. The organization has acquired (with a participatory method) a structured idea of the potentially effective methodologies for lifelong learning in the context of DobleVia.</p> <p><i>Find a technology that allows DobleVia and the employees an analysis of what can be achieved in terms of competence development:</i></p> <p>Partially success. TENCompetence tools seem to offer a solution to support personal competence development plan for DobleVia employees. More time is needed to confirm this statement.</p> <p><i>Requirements:</i></p> <p>TENCompetence is a good technology to structure the development of competences and to support the delivery of activities and tests. The PDP has been integrated into the corporate Intranet, with the unique problem of double-login. Linking the employees' outcomes of competence development to their CVs has not been implemented yet.</p>
Altran	<ul style="list-style-type: none"> <li>- Improvement of a 20% in the time and effort dedicated by the managers to find the more appropriated profiles to cover the job offers.</li> <li>- To obtain individualized training plans for each consultant.</li> <li>- Improvement of one point in the results</li> </ul>	<ul style="list-style-type: none"> <li>- Improvement of a 20% in the time and effort dedicated by the managers to find the more appropriated profiles to cover the job offers: Not Successful</li> <li>- Improvement of one point in the results of the customer satisfaction</li> </ul>

	<p>of the customer satisfaction survey in its consultants' efficiency section.</p>	<p>survey in its consultants efficiency section: Not Successful</p> <ul style="list-style-type: none"> <li>- To obtain individualized training plans for each consultant: Partially Successful</li> </ul> <p>The two first issues are not successful because the tools do not enables the implementation and mapping of the profiles with the job offers.</p> <p>The third one is considered partially successful because the tools facilitate the definition of the personal learning plans, but it can't be easily linked to the courses planned in the training tools of the company. Qualitative comments of the participants include "I think that the approach would be helpful to orientate junior engineers", "I think that the system needs improvements but I can see its utility if it is integrated into our internal SIG since it would allow us to define much better own carrier plans and what learning actions are more appropriate for each of us"</p>
Empower Limburg	<ul style="list-style-type: none"> <li>- Almost all participants used the PCM and considered it useful. For the pilot organizers from Empower Limburg, the concept of an online professional and learning community was further developed, and is currently being integrated into their (already existing) website. The PDP functionality is inspiring their design.</li> <li>- Yes.</li> </ul>	
CEDEP	<ul style="list-style-type: none"> <li>- This experience has allowed us to identify three main barriers to Web2.0 inter-organizational learning and collaboration in executive education: technological barriers, motivational barriers and the inter-organizational aspect itself. First of all, many executives were unable to access the platform from their companies. This is a major barrier. Organizations can't expect to profit from Web2.0 tools if they forbid access to them, and we cannot expect managers to spend time doing something which is not rewarded. The fact that our platform is video-driven posed a problem both with company firewalls, and with the need for managers to use webcams to share experiences as most participants did not have one.</li> <li>- Motivation is the key. If they were motivated, participants could have bought a webcam and accessed the platform from home. However, there are many more pressing demands on the participants' time once they have left the campus and are back in their companies and families, and our platform was not "fun and simple" enough. There are easier alternative ways to keep in contact and network with classmates such as email and LinkedIn that are not video-driven. In addition, the participants' very short experience of the platform in class was as a place to exchange knowledge about group projects; however, as these were disbanded, participants' saw no good reason to use it for that purpose either.</li> <li>- Finally, the inter-organizational aspect is a barrier because of confidentiality issues. It is one thing to share an experience in class, and quite another thing to have some lasting proof that you said something about your company that you should not have. How much can you safely say about your experience implementing ideas from executive training in your company to people in other</li> </ul>	



	<p>organizations? Even people used to face-to-face inter-organizational exchanges hesitate to extend this to an online environment.</p> <ul style="list-style-type: none"> <li>- Interestingly, although the short exposure to GMPTube did not trigger the desired learning-orientated motivation, executives from three large companies in the biopharma, media and industrial sectors have expressed interest in applying it internally in their companies as a way to connect marketing people, creative people and IT professionals respectively, rather than using it to exchange knowledge with classmates.</li> </ul>	
EPIQ	<ul style="list-style-type: none"> <li>- Formalizing the lifelong competence development processes in EPIQ.</li> <li>- Developing new integrated Personal Competence Management System to the company management, HR specialists and trainees with a high professional level in the context of both electronic industry and ICT.</li> <li>- Optimizing the process of the competence management using the Personal Competence Management System within a real industry environment.</li> <li>- Generating serious business benefits from the implementation of the TENCompetence solutions by mapping it to the European Foundation for Quality Management (EFQM) Excellence Model.</li> </ul> <p>Finding the right balance between the face to face and technology enhanced training, enabling on-the-job learning to be implemented.</p>	<p>All the expected business benefits identified in Table A.9.1 were reached. This includes the development of the new EPIQ Competence Catalogue, the new Competence Development plans and their successful implementation in practice, and the shift of content-based to competence-based training in EPIQ.</p>
ELSA	<p>Central issues for Elsa are:</p> <ul style="list-style-type: none"> <li>- Will the learners use LearnWeb 2.0 for the self-directed learning?</li> <li>- Which features of LearnWeb 2.0 will be used? What are the most significant tools?</li> <li>- Do learners use the possibility for cooperative learning with LearnWeb 2.0?</li> </ul>	<p>The collection of qualitative and quantitative data on the benefits of LearnWeb 2.0 in self-directed learning is an integral part of the business demonstrator. Log files will be analysed, group interviews will be held and business partners of ELSA will be asked to express their interest in LearnWeb 2.0, based on the results of the evaluation.</p> <p>The above-mentioned data has successfully been obtained, in far more detail than anticipated.</p>
UniGe	<p>At the end of the experimentation, a user manual for the Drupal CMS has been released as result of the collaborative work of students.</p> <p>Also, the use of LearnWeb allowed realizing a dynamic and social database of lessons plan within the EPICT Italy initiative. Teachers allowed to enter such database may find and share didactic resources with multiple research keys. Learn Web represents a powerful tool in order to perform precise and careful searches.</p>	
DSS / FMM02	<p>For these pilots to be considered a success, we would expect that 50% of all participants mastered all required competences. Another result is the</p>	<p>As it will be seen in the evaluation results, for example in the FMM02 pilot 65 participants attended it, and 38 of them finalized the course. The post-</p>

	emergence of a community of practice in the field of DSS in RBM, especially in the Nile Basin region. This however is difficult to measure quantitatively.	questionnaire evaluation shows that it was well appreciated by the participants, and the ones who dropped from the pilot were actually overwhelmed by the content for such a short period.
AGORA	<ul style="list-style-type: none"> <li>- 70% of the participants who have Internet are using the tool at home;</li> <li>- 60% of the participant enjoy this new way of self-directed learning;</li> <li>- 60% of the participants find the TENC tools user friendly;</li> <li>- 50% of the participant thought the learning resources matched their learning needs</li> <li>- 50% of the participants decided to create/develop new competence</li> <li>- profiles/competences they didn't thought of before the beginning of the pilot</li> </ul>	The evaluation results presented in appendix 2 show that the success criteria defined by Agora has been largely reached.

## 6. Summary and conclusion

This deliverable reported on the efforts towards reaching the Year 4 and cycle 3 TENCompetence project evaluation objectives. In particular, it has shown the validity and viability of the approach by performing real-life pilot implementations in different organisational and international settings. The areas that in the assessment have shown specific issues that required improvement have been communicated to the tool designers and implementers through the WP2 testing task force.

The third cycle has focused on pilots and business demonstrators addressing wider applicability and sustainability of the TENCompetence infrastructure. Continuations of the ICT Teacher Training and Digital Cinema have been supported and special efforts have been devoted to extend the UNESCO-IHE and Agora pilots which appeared to be significantly relevant impact scenarios. The results achieved in those revisions reinforce the conclusion that TENCompetence provides a relevant solution for competence development in support of professional development and social inclusion. In particular, the improvements performed in the infrastructure fostered self-directed learning, social interaction and knowledge sharing. The third cycle also involved the completion of concrete business or market-relevant demonstrators in collaboration with external “adopter organizations”. Eight business demonstrators have been carried out by associated partners involving participants representing commercial/industrial users in diverse type of settings, including the workplace. These demonstrators have shown the potential of TENCompetence in the domains of eLearning (e.g., content provider SME extending its business model by adopting a delivery infrastructure), Knowledge Sharing (e.g., informal competence development of large companies managers by sharing their experiences) and Personal Competence Development in Human Resource Management contexts (e.g., provision of internal competence development opportunities of SME employees –or facilitating the mobility of middle managers between partner organizations).

The main results in the four main areas of impact indicators discussed in this deliverable are the following:

### *Impact of pilots and business demonstrators together in reaching lifelong learners*

- The range of global distribution of pilots and demonstrators (13 different settings organized in 8 different European countries, some of the settings are multinational including Africa and the United States) demonstrates the relevance of the projects’ results at the European and International level. This range indicates the impact for bridging lifelong competence development support with a standardized framework across nation states and cultures.
- Together the cycle 3 pilots and the business demonstrators reached 625 learners in 42 countries. The total amount of learners involved in piloting and demonstration activities along the whole project duration is 1035. The pilot settings that already had an established community of participants or that offered any form of certification addressed a larger audience.
- The pilot studies and the business demonstrators involved 46 organizations. The majority of pilots and business demonstrators involved one or two organizations, but some of them targeted networks of organizations. The organizations were in a range of organisational types and economical background, including SMEs and even a micro enterprise as well as large companies and universities.
- The TENCompetence piloting activities have covered a wide range of applications, including not only vocational education and training activities but also new application domains such as organisation specific HR development in small and medium enterprises,

mobility support of professionals between organizations, or in social integration activities. The settings in which the pilots and demonstrations have been conducted show almost equal distribution of applications in different educational settings, such as formal education, as well as in non-formal and informal learning. The lifelong learners followed their competence development mainly from the workplace (8 pilots / demonstrators) or from home (9), and only in 6 pilots / demonstrators some of the learning actions were conducted in an educational institution.

- The seven TENCompetence use cases (Improving a specific competence for the current job; Improving a specific competence for a new job; Explore the community/learning network; Keeping up-to-date; Assessing the personal competences; Reflecting on competences; Receiving support for a non-trivial problem) have been largely demonstrated in the evaluation activities. Not all the use cases were involved in each of the pilots, but typically a combined selection of them. This indicates the connectedness and the relevance of the use-cases for lifelong learning, and that the provided tools can support them in real-life practice.
- The range of competence levels that were targeted and reached by the pilots and business demonstrators indicate the impact and the relevance of the tools for lifelong competence development for the different competence levels. The pilots and demonstrators addressed a broad range of competences (almost 290) and combined them into competence profiles (more than 60).

#### *Impact on participants*

- All the participants in pilots and demonstrators that had the opportunity to indicate their learning benefits were positives in this respect. All of them have worked on at least one competence profile (some had worked on more than one). Depending on the pilot, the different types of competences (knowledge, functional and reflective, social, meta-cognition...) were developed in varying ways. This result shows that TENCompetence supports the development of the different types of competences.
- A large majority of the learners participating in the pilots wants to continue to develop the competences further in the future using the TENCompetence approach. In fact, there is evidence in some pilots that show that they are using the system beyond the pilot duration. In the business demonstrators the desire to continue with the approach is divergent. In some of the demonstrators participants are undecided. The reasons behind this result have mainly to do with the profile / previous experiences of the participants (mind change) or with specific requests (e.g., integration with proprietary tooling in the organization, changes in the graphical interface). The participants of two demonstrators showed a clear tendency to like to continue using the approach: DobleVia and EPIQ. Both demonstrators have in common that they are small or medium sized companies and that their goal was related to human resource / career development.
- Altogether, the majority of the participants appreciate positively the learning experience. In general the participants also pointed out the experienced control of their own learning when using the TENCompetence approach as well as the flexibility supported by the system.
- Communication and social interaction have been supported using varied combinations of approaches (PDP blogging, LearnWeb, TENTube, Liferay forum, message board, chat, already existing tooling in the organization) and depending on the needs and contexts of the different pilots and demonstrators. Overall the collaboration potential of the PCM tooling is appreciated positively by the participants. The main lessons learnt are the following: The blogging and forum facilities are especially useful in distance settings, which do not

offer face-to-face sessions. The most popular use of the blogging is discussing competences to master and reporting progress. The forums, message boards, participants' profiles and chat facilities provided by Liferay complement the PDP blogging in the support of social interaction. This complement may be also provided by already existing communication tooling available in the organization. LearnWeb is notably helpful in settings that may include face-to-face sessions but require sharing of resources. Advanced approaches for social interaction (such as those driven by video in TENTube) still present challenges. A more integrated way of presenting the communication facilities would enhance the approach.

- As expected in the design of the pilots and demonstrators the participants made progress on the seven use cases targeted in the project. Depending on the pilot /demonstrator, the type of competence development provided varied, including instructed education and training, self-organized learning, human resource development, community of practice and knowledge management.

#### *Impact on organizations*

- Most of the pilots and demonstrators have involved a relatively high number of participants (in relation with the organization size or the expectations given previous activities of the organizations), though practical issues (e.g., number of competence profiles covered, time constraints) have made that in some of the pilots / demonstrators the number of participants involved is limited. The demonstrators have also involved persons high in the hierarchy of organizations, capable of deciding on further experimentation, further development and fine-tuning and in the end integrating the infrastructure in the organization(s). It is also interesting in the pilots not only organizations as such participated. For example the Bulgarian Ministry of Education and Sciences had an important role in the ICT Teacher Training pilot.
- The business of organizations involved in the business demonstrators vary from offering services, producing multimedia content, designing executive development programmes, developing engineering projects, etc. Most of the business is service-oriented, internal competence development or knowledge management. The type of business also shaped the objectives of each pilot /demonstrators. Some of these objectives were quite ambitious and therefore not fully covered by the available tooling at the moment of implementing the experiences. However, these extra requirements suggest potential areas of future development to extend and sustain the TENCompetence results.
- When relating the applied use cases to the working processes and job positions in the organizations, the qualitative impact is partly composed of the influence of senior staff and decision-makers within the organizations. Extensive information is provided in chapter 3.
- At least four of the organizations (DobleVia, CEDEP, EPIQ, Empower Limburg) involved in the demonstrators stated explicitly that they want to continue using the TENCompetence approach, two are undecided, one needs more time in order to take a decision, and one (Altran) is not willing to keep using the TENCompetence tools.
- The authors, facilitators, assessors, and the rest of the supporting roles were in general quite positive regarding the experience. This was also true in the Altran case. In some of the demonstrators (such as MIZAR or ELSA), however, the prototypical ripeness of some of the tooling limited their level of satisfaction.
- The pilots and demonstrators have triggered different types of changes or implications in the adopters' organizations. Some of the providers have shifted from a content-based approach to a competence-based approach, others have directly delivered personalized

competence development opportunities beyond only providing the content, others have installed a knowledge management system, and others have piloted career development solutions for their own employees.

#### *Impact on business opportunities*

- Some implementers experienced that the TENCompetence infrastructure supported them with their internal training actions and offering for their personnel. In most business demonstrators the business benefits were seen as something internal. Three of the business demonstrators showed however a service-oriented business model. Moreover, one of the implementers is currently exploring further business opportunities in collaboration with other SMEs. This is also the case of Agora, which is looking for new opportunities to keep using the TENCompetence approach; and of UNESCO-IHE, which is currently defining new business models which include the provision of separate, smaller learning actions that are part of larger competence development paths.
- Most of the adopter organizations (associated partners) have invested significant extra costs (external to the TENCompetence project and the regular activities of the organization) in order to carry out the demonstrator. It seems that the organizations that have invested most of their own resources have been more successful in the results or outcomes derived from the demonstrators. These organizations were also the ones that decided to install the TENCompetence tooling on their own servers. Customization of the tooling to adapt to the organization was performed in some demonstrators and proved to be a key issue of success to foster its adoption.
- Three of the adopter organizations declare that they want to continue using the software tools of TENCompetence. Other organizations requested improvements before taking a decision on this.
- According to the success criteria defined by each implementer before setting-up the pilot / demonstrator and their own assessment after the pilot experience, for most of the adopter organizations the business demonstrators have been a success to a large extent. The less successful implementations (Altran, MIZAR, and CEDEP) also point out the lessons learnt and some aspects that should be covered in order to enhance and extend the approach in the future.



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## Appendix 1: Impact indicators data collection instrument

TENCompetence, WP4 - Evaluation results to be provided by core partners together with the associate partners they are supporting in running business demonstrators							
	Type of impact indicator	Impact indicator	Priority (critical / nice to have)	When the information may be collected	Who may be asked to provide the information	How (instrument) this information may be obtained	Answer / information provided the core partner supporting the associate partner (each business demonstrator will complete a spreadsheet)
3	Impact of pilots and business demonstrators together in reaching lifelong learners	Total number of participants (learners) in the demonstrator	Critical to have	During / end of the demonstrator	Demonstrator implementer	Internal record of participants (as monitored in the system, those completing a questionnaire...)	
4	Impact of pilots and business demonstrators together in reaching lifelong learners	Total number of organizations (technical provider, content provider, user organization etc.) involved in the demonstrator	Critical to have	Start / during / end of the demonstrator	Demonstrator implementer	Description of the demonstrator	
5	Impact of pilots and business demonstrators together in reaching lifelong learners	Select from the list the types of individual learners involved in the demonstrator. You can also add a description if the type of users indicated do not match with the actual participants involved in your demonstrator	Critical to have	Start of the demonstrator	Participants	Questionnaire at the beginning or at the end of the demonstrator	<p>1) People with a need to develop some general or specific competences to perform their job better, to solve any type of problems or to learn to cope with specific situations. Also those with a need to improve their career, or a desire to change their jobs.</p> <p>2) People who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge.</p> <p>3) People who need a formal degree, diploma or certificate at any time in their life.</p> <p>4) People who want to develop competences due to the intrinsic motivation to learn something in a certain area. This includes people who want to develop competences to improve their quality of life (hobbies, family life, social environment, etc.), or to get support in something which is difficult for them.</p>
6	Impact of pilots and business demonstrators together in reaching lifelong learners	Select from the list the types of groups or teams involved in the demonstrator. You can also add a description if the type of users indicated do not match	Critical to have	Start of the demonstrator	Participants, demonstrator implementer	Description of the pilot, questionnaires to participants	<p>1) Groups who have to solve complex problems and tasks or have to cope with difficult situations in which group collaboration will increase the chance of successful performance.</p> <p>2) Groups who want to support new/novice members in their teams.</p> <p>3) Groups who want to share knowledge, skills and points of view to develop their insights and competences in the field (e.g. research teams).</p> <p>4) Groups in companies who want to (or must) develop competences in</p>

**D4.6: Report on the results of cycle 3 demonstrators**

		with the actual teams involved in your demonstrator					order to perform better.
7	Impact of pilots and business demonstrators together in reaching lifelong learners	Select from the list the types of organizations involved in the demonstrator. You can also add a description if the type of users indicated do not match with the actual teams involved in your demonstrator	Critical to have	Start of the demonstrator	Demonstrator implementer	Description of the demonstrator	1) Organisations that want to disseminate and manage new and expert knowledge within the organisation / workplace. 2) Organisations that have to train personnel to learn or fulfill specific (new, complex or changing) job requirements. 3) Organisations that produce knowledge and want to manage the exploitation, management and dissemination of knowledge. 4) Organisations that want to develop the competences of groups/teams/departments within the organisation to cope with a new situation, e.g., new product, new competitors, new market challenges.
8	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of authors involved (using authoring tools such as the PCM, ReCourse, the PDP for defining activities)	Critical to have	Start of the demonstrator	Demonstrator implementer	Description of the demonstrator	
9	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of facilitators supporting the demonstrator (if roles overlap for the participants please indicate)	Critical to have	During / end of the demonstrator	Demonstrator implementer		
10	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of assessors (if roles overlap for the participants please indicate)	Critical to have	During / end of the demonstrator	Demonstrator implementer		
11	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of educational support staff (if roles overlap for the participants please indicate)	Critical to have	During / end of the demonstrator	Demonstrator implementer		
12	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of technical staff (if roles overlap for the participants please indicate)	Critical to have	During / end of the demonstrator	Demonstrator implementer		
13	Impact of pilots and business	Number of other role(s) (describe)	Critical to have	During / end of the	Demonstrator implementer		

	demonstrators together in reaching lifelong learners			demonstrator			
14	Impact of pilots and business demonstrators together in reaching lifelong learners	<b>Settings where the learners used the infrastructure (workplace, home, educational institution rooms, etc.)</b>	Critical to have	Start/ during the demonstrator	Participants, implementers	Questionnaire at the end of the demonstrator	
15	Impact of pilots and business demonstrators together in reaching lifelong learners	<b>Average time (how many hours spent) participants have been involved in lifelong competence development using the TENC infrastructure</b>	Nice to have	End of the demonstrator	Participants	Questionnaire at the end of the demonstrator, some log files	
16	Impact of pilots and business demonstrators together in reaching lifelong learners	<b>Number [+names] of competence profiles involved in the demonstrator</b>	Critical to have	Start of the demonstrator	Demonstrator implementer / content provider	Description of the demonstrator, data in the PCM services (seen from the PDP)	
17	Impact of pilots and business demonstrators together in reaching lifelong learners	<b>Number [+names] of competences involved in the demonstrator</b>	Critical to have	Start of the demonstrator	Demonstrator implementer / content provider	Description of the demonstrator, data in the PCM services (seen from the PDP)	
18	Impact of pilots and business demonstrators together in reaching lifelong learners	<b>Number of activities involved in the demonstrator</b>	Critical to have	Start of the demonstrator	Demonstrator implementer / content provider	Description of the demonstrator, data in the PCM services (seen from the PDP)	
19	Impact of pilots and business demonstrators together in reaching lifelong learners	<b>Number of people (authors) using the PCM for creating competence profiles, competences...</b>	Critical to have	Start of the demonstrator	Demonstrator implementer / content provider	Interview with the implementers, description of the demonstrator	
20	Impact of pilots and business demonstrators together in reaching lifelong learners	<b>Number of people (authors) using the ReCourse for creating Units of Learning and</b>	Critical to have (if applies)	Start of the demonstrator	Demonstrator implementer / content provider	Interview with the implementers, description of the demonstrator	

	reaching lifelong learners	tests based on QTI					
21	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of people (participants) using the PDP to plan personal development plans and access activities	Critical to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
22	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of people (participants) using the LearnWeb (and explain what for they have used it)	Critical to have (if applies)	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
23	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of people (participants) using the Overview or Goal Orientation Tool (and explain what for they have used it)	Critical to have (if applies)	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
24	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of people (participants) using the LD and QTI runtime system (and explain what they have used it for)	Critical to have (if applies)	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
25	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of people (participants) using the TENTube (and explain what for they have used it)	Critical to have (if applies)	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator, TENTube log files...	
26	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of people (participants) using the additional functionality available in liferay (and explain what for they have used it)	Nice to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
27	Impact of pilots and business demonstrators together in reaching lifelong learners	Number of people (participants) using the other tools (and explain which tools)	Nice to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
28	Impact on	What has been learned	Critical to	End of the	Participants	Questionnaire for	



	participants	by the participants (how many and on which competence profiles or/and competences learners have been working)	have	demonstrator		participants at the end of the demonstrator	
29	Impact on participants	How many participants have completed the development plan	Nice to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
30	Impact on participants	How many participants would like to further develop competences adopting the TENCompetence approach	Nice to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	1) how many like to continue with the approach 2) how many won't like to continue with the approach 3) how many are undecided to continue with the approach
31	Impact on participants	How many participants appreciate positively the learning experience based on TENCompetence, how many are neutral in their appreciation and how many rate it as negative	Critical to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	1) how many appreciate positively the learning experience based on TENC 2) how many are neutral regarding the learning experience based on TENC 3) how many rate the learning experience based on TENC as negative
32	Impact on participants	Additional qualitative comments of the learning experience (control of own learning, preference of fixed versus flexible learning route, learning resources, learning routes, collaboration)	Nice to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator	
33	Impact on participants	How participants have made progress on the use cases (see list)	Critical to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator asking them to select form the list on what they have made progress	1) how many have progressed improving a specific competence of its current job 2) how many have progressed improving a specific competence for a new job 3) how many have explored the community / learning network 4) how many have progressed keeping up-to-date 5) how many have progressed assessing their competences 6) how many have progressed reflecting on their competences 7) how may have progressed receiving support for some non-trivial problem
34	Impact on	Type of competence	Critical to	End of the	Participants	Questionnaire for	1) instructed education and training:

**D4.6: Report on the results of cycle 3 demonstrators**

	participants	development provided (participants to select from the list)	have	demonstrator		participants at the end of the demonstrator asking them to select form the list	2) self-organised learning (autonomous learner): 3) human resource development (like self-organised learning but with pre-defined goals and pre-selected learning offers): 4) community of practice (voluntary knowledge exchange): 5) knowledge management (mandatory knowledge exchange):
35	Impact on participants	Effect that competence development has had on participants' functioning in their job, family or other context	Nice to have	End of the demonstrator	Participants	Questionnaire for participants at the end of the demonstrator asking them to select form the list...	1) how many participants have experienced a possitive change in their functioning (new job, promotion in their current job, etc.) 2) how many participants have experienced a possitive effect in their personal environment (with family, in hobbies, etc.) 3) how many participants have experienced any other possitive effect (define)
36	Impact on organizations	Size of organizations involved in the demonstrator (if only a department, unit and working group participates in the pilot, provide the size of the unit)	Must have	Start of the demonstrator	Implementers	Description of the demonstrator	1) Micro organization (< 10 permanent staff): 2) Small organization (10-50 permanent staff): 3) Medium organization (50-250 permanent staff): 4) Mid sized organization (250-1500 permanent staff): 5) Large organization (> 1500 permanent staff):
37	Impact on organizations	Type of organizations involved in the demonstrator	Must have	Start of the demonstrator	Implementers	Description of the demonstrator	• Local Governmental Organisations: • Regional Governmental Organisations: • National Governmental Organisations: • International Governmental Organisations: • Trade Unions: • Associations • Enterprises • Industry
38	Impact on organizations	Business branch of the organisation(s) (if possible, provide for each branch the name the branch and the number of participants)	Must have	Start of the demonstrator	Implementers	Description of the demonstrator	
39	Impact on organizations	Objective of the pilot for the organisation(s)	Critical to have	Start of the demonstrator	Implementers	Description of the demonstrator	
40	Impact on organizations	Use cases covered by the pilot in the organisation (select from list, you might want to add new use cases)	Critical to have	Start of the demonstrator	Implementers	Description of the demonstrator	1) improving a specific competence of its current job 2) improving a specific competence for a new job 3) explored the community / leaning network 4) keeping up-to-date 5) assessing their competences 6) reflecting on their competences 7) receiving support for some non-trivial problem
41	Impact on organizations	Relation of the use cases to working processes and job positions in the organisation	Nice to have	Start of the demonstrator	Implementers	Description of the demonstrator	

**D4.6: Report on the results of cycle 3 demonstrators**

42	Impact on organizations	Categories of educational facilitators	Critical to have	Start of the demonstrator	Implementers	Description of the demonstrator	• content provider: • continuing vocational education and training (cVET): • Higher education: • Vocational School (initial VET): • Other:
43	Impact on organizations	From the authors, assessors, facilitators, and the rest of the roles (excluding the learners), how many of them would like to continue with the TENCompetence approach	Nice to have	End of the demonstrator	Different roles involved (from organizations)	Interviews or questionnaire for roles at the end of the demonstrator	1) how many like to continue with the approach 2) how many won't like to continue with the approach 3) how many are undecided to continue with the approach
44	Impact on organizations	From the authors, assessors, facilitators, and the rest of the roles (excluding the learners), how many participants appreciate positively their experience based on TENCompetence, how many are neutral in their appreciation and how many rate it as negative	Critical to have	End of the demonstrator	Different roles involved (from organizations)	Interviews or questionnaire for roles at the end of the demonstrator	1) how many appreciate positively their working experience based on TENC 2) how many are neutral regarding their working experience based on TENC 3) how many rate the working experience based on TENC as negative
45	Impact on organizations	How setting-up the pilot has affected the provider (E.g. an educational institution may have shifted from a content-based approach to a competence-based approach; another provider may have used distance learning for the first time etcetera.)	Nice to have (critical in case the organization has been affected)	End of the demonstrator	Implementers	Description of the demonstrator	
46	Impact on business opportunities	Business model(s) or cases shown in the demonstrator	Critical to have	Start of the demonstrator	Implementers	Description of the demonstrator	- internal training; - Knowledge management; -external training; - community of practice (across organisations); - self organised learning; - on-the-job training; - certification; - assessment; - re-training; - further education, add a different one if applies
47	Impact on business opportunities	Business model(s) or case(s) potentially possible with the TENCompetence ideas though not	Nice to have	Start and end of the demonstrator	Implementers	Description of the demonstrator	

**D4.6: Report on the results of cycle 3 demonstrators**

		demonstrated					
48	Impact on business opportunities	Estimation of resources (external to TENCompetence project) invested in carrying out the demonstrator	Nice to have	End of the demonstrator	Implementers		
49	Impact on business opportunities	Plans to use TENCompetence beyond Nov. 2009	Critical to have	End of the demonstrator	Implementers		
50	Impact on business opportunities	Decision to install TENC tooling in their own servers of subcontract the hosting, etc	Nice to have	End of the demonstrator	Implementers		
51	Impact on business opportunities	Decision to customize the TENC tooling to adapt it better to their organization (e.g., styles, integration with existing tooling in the organization)	Nice to have	Start / End of the demonstrator	Implementers		
52	Impact focused on the specific business demonstrator	Success criteria of the business demonstrator met (whether the demonstrator is a success according to the coordinator and the criteria they provided)	Critical to have	End of the demonstrator	Implementers		In the description of the demonstrator you mentioned (or should have - see the end of the table in the related googledoc, links at <a href="http://www.partners.tencompetence.org/mod/wiki/view.php?id=516">http://www.partners.tencompetence.org/mod/wiki/view.php?id=516</a> ) one or more results with which you would consider your demonstrator a success. Please describe / explain to which extent the demonstrator is a success according to the estimated success criteria.

## Appendix 2: Àgora pilot

### A.2.1 Description of the pilot

**Table A.2.1 Description of the Agora pilot**

<b>Àgora pilot</b>	
Short description:	
<p>The general goal of Àgora pilot is to test and validate the TENCompetence infrastructure and pedagogical concepts in their ability to support the competence development and lifelong learning of adults in languages and information and communication technologies (ICT), which are key areas in Àgora education. In this sense, Àgora intends to facilitate the inclusion of adults into the active fabric of current society, in which ICT and languages are of the utmost importance in order not to be left out. The first Àgora pilot started in September 2008 and lasted 6 weeks in which Àgora participants had the opportunity to reinforce and improve their competence level in ICT and English language (basic and advanced levels) according to their needs and interests. The second version of the pilot started March, 9th and lasted 10 weeks. It further developed the competences and leaning resources related to ICT and English language. In addition, a new competence profile, Basic Spanish, was created in order to enable the high numbers of immigrants in the school to take advantage of the TENCompetence infrastructure and thus guarantee a broader diversification in the user profiles.</p>	
Name and description of the Associate Partner	<p><b>Association of participants Àgora.</b></p> <p>The <b>Association of Participants Àgora</b> is a non-profit making organization of adults who do not have any academic degree and is dedicated to the non-formal training of lifelong learners, especially those who are socially excluded, i.e. people coming from scholastic failure, immigrant people, elder people, disabled people, etc. The individual people involved are mainly characterized by their intrinsic motivation to learn and develop competences.</p> <p>The <b>Universitat Pompeu Fabra (FBM-UPF)</b> assisted Àgora in technical and content related issues such as:</p> <ul style="list-style-type: none"> <li>• testing of the TENCompetence tooling in the school prior to the pilot launch</li> <li>• content development (ICT competence profiles)</li> <li>• observations of the use of the tooling in the computer room and conducting focus groups</li> </ul> <p><b>University of Amsterdam (UvA), Universitat Pompeu Fabra (UPF) and Open University Netherlands (OUNL)</b> were the pilot evaluators.</p>
User groups	<p>In this second version of Àgora Pilot, the wide range of adult learners still varies in terms of age, gender and in their needs and interests. In addition, the variety in the user groups is accentuated by the creation of a new competence profile, Basic Spanish, addressed to immigrant participants who want to acquire new abilities to find a job, to perform their job better or basically to be better integrated in Spanish society.</p>
Setting	<p>Àgora pilot takes place in the computer room of the La Verneda school for adults during a period of 10 weeks. There were 14 weekly sessions of 1h.</p>

	<p>Seven TENCompetence experts were in charge of the different self-training sessions to assist the users with any technical or content related issue. In addition, the participants are allowed to use the computer room whenever it is free, including week-ends and after the end of the pilot. Besides, the majority of the participants who have Internet are using the tool at home.</p>
Roles	<p>There were a total of 158 participants in the pilot and their roles are the following (some participants had more than 1 role):</p> <ul style="list-style-type: none"> <li>• Staff testing the TENCompetence tools in the school: 3 (UPF) + 5 (participants/users/expert)</li> <li>• Content developer (English + Spanish competence profiles) + Expert/study adviser + competence assessment provider + Staff collecting data from questionnaires: 1 (Àgora)</li> <li>• Content developer (ICT competence profiles): 2 (UPF)</li> <li>• Competence providers: 2 (Àgora) + 2 (UPF)</li> <li>• Staff providing technical support to learners/ Experts + Observers (usage of the software) + Focus group experts: 7 (Àgora) + 3 (UPF)</li> <li>• Focus group participants : 6 participants (Àgora) + 2 (UPF)</li> <li>• Participants/users: 138 learners developing Spanish, English or/and ICT competences (including the participants who did not complete the pilot)</li> <li>• Pilot evaluators: mainly persons from UvA, UPF and OUNL</li> </ul>
Tooling	<ol style="list-style-type: none"> <li>1. Support new pedagogical &amp; organizational models for Lifelong Competence Development <ul style="list-style-type: none"> <li>• Web PDP: to create Competence Development Plans It is used by the experts to create activities and associate them to the corresponding competences. It is used by the participants to create their own competence development plans in accordance with their needs and interests. As this version of the PDP is Web, the users have the opportunity to continue developing competences outside the pilot setting.</li> <li>• PCM: to create the competence profiles and the competences</li> <li>• ReCourse: to create UoLs</li> <li>• LDRuntime: to run the different UoLs proposed</li> <li>• LinkTool: to manage the user accounts for the UoLs</li> </ul> </li> <li>2. Support individuals to search the most suitable formal and informal learning activities</li> <li>3. Stimulate pro-active sharing of resources <ul style="list-style-type: none"> <li>• LearnWeb2.0 (used by a group of 12 participants)</li> </ul> </li> <li>4. Support competence assessment <ul style="list-style-type: none"> <li>▪ Web PDP: Self-assessment functionality The self-assessment functionality of the Web PDP was used by the participants to determine their competence proficiency level with regards to the different competences available. The system provided a definition of the existing levels.</li> <li>• Recourse: to create the self-assessment activities (tests)</li> <li>▪ LinkTool and SLeD: to visualize the self-assessment activities</li> </ul> <p>The participants had the possibility to take a test in order to help them assigning a competence level to the different competences involved. Depending on the test results, the system provided recommendations on the level to be assigned.</p> </li> </ol>



	<p>5. Provide various forms of user support services</p> <p>6. Provide decentralized, self-organized management</p> <p>7. Integrate isolated models &amp; tools from four different areas</p>
Aim and expectation of the demonstrator	<p>Participants were expected to reinforce and improve their competence level in English language (Basic and Advanced), ICT and Basic Spanish language according to their interests and needs.</p> <p>They were also expected to share knowledge and views with the aim of practicing and developing new knowledge.</p> <p>The type of learning supported by the pilot was the following:</p> <ul style="list-style-type: none"> <li>- self-organized learning</li> <li>- competence development (mainly functional, communication, reflective and social competences)</li> <li>- knowledge sharing</li> </ul>
Context	<ul style="list-style-type: none"> <li>• The general motivation of Àgora is to promote social and educational inclusion of those adults who have been excluded from formal education. To solve this situation, in 1986 the Association of current participants Àgora was created with the main aim to provide useful education to those people who had been left out from formal education. One of the main challenges of the School is to explore new ways to support a wide range of competence development and knowledge sharing for adult lifelong learners.</li> <li>• On the one hand, Àgora promotes diverse learning activities addressed to people without basic academic degrees. These activities include language learning (Catalan, Spanish, German, Arabic, French, English, etc.), preparation for university access tests, basic literacy and literary gatherings among many other workshops. On the other hand, it offers a wide range of cultural activities for people with no higher education degrees. Among all these activities, Àgora specifically focuses on the development of activities which aim at promoting Information and Communication Technologies (ICT). Àgora has extensive experience in the ICT sector, and since 1999 the association administers an OMNIA Point (computer labs distributed over Catalonia by the government to facilitate access to ICT for those with difficulties to make use of them). ICT are used both for learning about ICT and as a tool to study other topics. Another key objective of the lab is to facilitate access and promotion within the labour market starting from the training (e.g.; learning to write documents, use the e-mail and search for information on the Internet efficiently) and the professional re-training (e.g.; keeping people with some professional experience up-to-date about recent developments in ICT). Through these actions, people not only learn how to use and deal with ICT which give them access to the labour market but also enable them to participate more widely in society. ÀGORA is based on democratic participation, opening all decision-making spaces to any participant of the organization.</li> </ul> <p>The following scenarios (linked to the use cases attached in appendix 4 of TENCompetence D4.3) illustrate this context:</p>

	<p>Ana is a mother of three. Ana was born in the 1940s in the south of Spain. She suffers from traditional age-related changes in functional abilities, lacks computer experience and has a low level of education. She currently lives in Barcelona. However, most of her adult children live in the Canary Islands, because of work prospects. Her adult children use computer technologies on a daily basis. Nevertheless, Ana does not use them at all. They are attempting to win Ana over the use of computers, especially for communication purposes. Her adult children urge Ana to use the email and other ways of computer-mediated communication, because it is far cheaper than giving them a call. Ana has little acquaintance with computer-related technologies. Nevertheless, she has a vested interest in learning how to use computers, especially the email and the Messenger, in that she wishes to talk more often to her nearest and dearest. Ana is participating in La Verneda adult centre in order to satisfy her need. She has recently bought a computer and has learned how to use the basics of emailing, which lives up all her expectations.</p> <ul style="list-style-type: none"> <li>• Pedro started to use computers 5 years ago. He started to learn how to use computers because he found them to be interesting, on the grounds that many people use them. After taking several courses in La Verneda adult centre, he can use a broad array of computer applications with little or no support from expert users. He has recently uploaded his personal web page to a public web server. He spends lots of hours working on his web page, which contains a lot of information about Spanish National Garden and wildlife. Pedro loves forests and animals, because it brings him abiding memories of his childhood. Nevertheless, he has some difficulties in conducting specific tasks; most of them related to web design, such as working with tables and links. He has also problems in carrying out other tasks in a way in which he is not familiar with. Nevertheless, Pedro aims to learn more and new things because he wants to recycle his knowledge about computers. Pedro feels that he got stuck; this is why he is still participating in La Verneda activities, as well as being in touch with his friends, with whom he shares his projects (e.g.; information related to his web page: photos, text).</li> </ul>
Business / valorization opportunities	<p>We are considering using the TENCompetence infrastructure, Web PDP and Liferay in Àgora after the end of the Pilot and if possible after the end of the TENCompetence project too. The main areas to be treated would be mainly the same as during the pilots, i.e. competence development in ICT, English and Spanish for foreigners which are the areas of most needs. The users would use the web PDP in the computer room of the school in the framework of the self-training sessions (in the free access hours). There is always a person of support in the self-training sessions to help the users with any query. Regarding the didactic material, we would be able to use the existing one but on the long run it would be necessary to create new contents according to the needs and interests of the participants. Àgora staff should also be trained in order to be able to deploy the tools and provide support to the users in the self-training sessions. Technical support would also be needed in order to administrate the TENCompetence tooling, i.e. PCM, ReCourse, Web PDP and LDRuntime.</p>
Relevance of	<p>The School provides a physical and organizational infrastructure (with PCs</p>

TENCompetence for the demonstrator context	<p>and smart boards) to organize live events for training in the PCM, and a practical scenario to devise a TENCompetence organizational infrastructure. Participants used the TENCompetence infrastructure in the computer classroom of the School and/or at home, which opened up a wide range of learning opportunities (to strengthen the communication between participants out of the school, to learn how to use computers by using them in their houses...).</p> <p>TENCompetence offered an interesting opportunity for Agora also because it was re-orienting its training offer into competence development programs. These programs were planned to be offered even beyond of the synchronous courses currently offered to the participants. The TENCompetence infrastructure and models offered Agora a way of providing competence development opportunities that could be personalized and followed asynchronously. Participating in a European initiative like TENCompetence enabled Agora to be aware of the new tendencies in the field and to offer their learners an appropriate technical and organizational infrastructure, using open-source standards-based, sustainable and innovative technology. The project also facilitated the possibility of sharing experiences with other European institutions. This initiative allowed the continuation of the efforts already done in other European projects (eLearning) like OpenDock or AbeCampus.</p>
Competence profiles and competences involved	<p>The competence profiles and related competences involved in the second version of Àgora Pilot were the following:</p> <p><b>Competence profile "Basic level of English":</b></p> <ul style="list-style-type: none"> <li>- Being able to express oneself orally and in writing in a daily environment</li> <li>- Being able to construct simple sentences</li> <li>- Being able to introduce oneself and the others</li> <li>- Being able to formulate and answer simple questions in a daily environment</li> <li>- Being able to recognize and use the vocabulary referring to the house elements</li> <li>- Being able to recognize words and expressions referring to "go shopping"</li> <li>- Being able to recognize words and expressions referring to "the doctor and health"</li> <li>- Being able to recognize words and expressions referring to "transports and travel"</li> <li>- Being able to understand and use the vocabulary referring to "numbers and time"</li> </ul> <p><b>Competence profile "Advanced level of English"</b></p> <ul style="list-style-type: none"> <li>- Being able to express oneself orally and in writing in any context</li> <li>- Being able to construct complex sentences</li> <li>- Being able to read and understand texts from different sources</li> <li>- Being able to understand the main ideas of conversations and speeches</li> <li>- Being able to understand and lead a phone talk</li> <li>- Being able to manage while traveling</li> <li>- Being able to manage in a medical environment</li> <li>- Being able to understand complex jargons and expressions</li> </ul> <p><b>Competence profile "Basic Spanish"</b></p> <ul style="list-style-type: none"> <li>- Being able to introduce oneself</li> <li>- Being able to recognize and use the numbers</li> </ul>

	<ul style="list-style-type: none"> <li>- Being able to manage in the city</li> <li>- Being able to use the vocabulary referring to "the house"</li> <li>- Being able to manage in a medical and health environment</li> <li>- Being able to manage shopping</li> <li>- Being able to express oneself orally and in writing in a daily environment</li> <li>- Being able to express oneself using complex verbal forms</li> <li>- Being able to understand the main ideas of conversations and speeches</li> </ul> <p><b>Competence profile "Folder and window management in OFFICE and files in WORD"</b></p> <ul style="list-style-type: none"> <li>- Being able to manage folders and files</li> <li>- Being able to manage windows</li> </ul> <p><b>Competence profile "Internet use"</b></p> <ul style="list-style-type: none"> <li>- Being able to download images and programs from Internet</li> <li>- Being able to use Internet in order to find one's way in the city</li> <li>- Being able to search information on the Internet</li> </ul> <p><b>Competence profile "Email use"</b></p> <ul style="list-style-type: none"> <li>- Being able to create and access a personal email account</li> <li>- Being able to send and reply to an email</li> <li>- Being able to send a document or a photograph by email</li> </ul> <p><b>Competence profile "PowerPoint use"</b></p> <ul style="list-style-type: none"> <li>- Being able to create and manage PowerPoint presentations</li> <li>- Being able to insert music to a PowerPoint presentation</li> </ul>
Training needs	Training materials (Spanish language) for all the tools.
Implementation plan	<p>The implementation plan of the second version of Àgora pilot was as follows:</p> <p><b>January-February 2009:</b> development of learning resources and units of learning, creation of the competence profiles, associated competences and competence development plans.</p> <p><b>February 2009:</b> 4 testing sessions of the TENCompetence tools to be used in the pilot, involving 3 UPF experts and 5 Àgora participants (including 1 expert)</p> <p><b>End of February 2009:</b> populate the system with the competence development plans.</p> <p><b>End of February:</b> training for the experts on the TENCompetence tools</p> <p><b>2nd March- May 29<sup>th</sup> 2009:</b> duration of the pilot</p> <p><b>July 2009:</b> evaluation of the Pilot</p>
Evaluation plan	<p>The following data collection instruments were used to fulfill the evaluation of Àgora pilot:</p> <ul style="list-style-type: none"> <li>▪ Questionnaires (Pre-test and Post-test)</li> <li>▪ Log files</li> <li>▪ Focus group with experts and participants</li> <li>▪ Observations on how participants use the tools in the self-training sessions and post-pilot observations</li> <li>▪ Information on the pilot context</li> </ul>
Could you	<ul style="list-style-type: none"> <li>• 70% of the participants who have Internet are using the tool at</li> </ul>

mention one or more results with which you would consider your demonstrator a success?	<p>home;</p> <ul style="list-style-type: none"> <li>• 60% of the participant enjoy this new way of self-directed learning;</li> <li>• 60% of the participants find the TENC tools user friendly;</li> <li>• 50% of the participant thought the learning resources matched their learning needs largely of completely;</li> <li>• 50% of the participants decided to create/develop new competence profiles/competences they didn't thought of before the beginning of the pilot</li> </ul>
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### A.2.2 Implementation

The implementation was actually carried out according to the plan of the second version of Àgora pilot as follows:

**January-February 2009:** development of the resources and units of learning, creation of the competence profiles and associated competences and competence development plans.

**February 2009:** 4 testing sessions of the TENCompetence tools to be used in the pilot, involving 3 UPF experts and 5 Àgora participants (including 1 expert)

**2nd - 4th March 2009:** populate the system with the competence development plans postponed one week as the start of the pilot)

**March 5th:** training for the experts on the TENCompetence tools (postponed one week as the start of the pilot)

**9th March – 12th June 2009:** duration of the pilot

The pilot started one week later than planned to enable the recently hired Àgora staff to be trained in time and also to include more content related to ICT competence profiles (upon request of the participant themselves). In addition, it was decided to extend the pilot period as it was overlapping with 10 days Easter leave and several public holidays.

**July 2009:** data collection for evaluation

#### Registration of the participants

The registration period took place throughout February 2009. No specific promotional action was undertaken. The participants of the 1<sup>st</sup> pilot were informed of the possibility to take part in the second pilot and thus represent around 39% of the registration. The remaining participants were informed by word of mouth or by asking information at the school reception.

#### Actual number of participants

- Participants/users: 138 learners developing Spanish, English or/and ICT related competences. Around 120 participants started at the beginning of the pilot but for different reasons mentioned below (See *Results of the experience*) some of them decided not to complete the whole pilot and therefore almost 20 new participants covered these free places as the pilot was going along.
- 7 experts received a TENCompetence training in order to provide technical and content related support to the users in the different weekly sessions (note that 6 out of the 7 experts did not participate in the 1<sup>st</sup> pilot.)
- There were 3 training providers (FBM-UPF)

#### Training

- Training for the experts on 27<sup>th</sup> February 2009 (2h training)  
30 minutes TENCompetence presentation and 90 minutes training on TENCompetence tooling, including Web PDP, Liferay and LearnWeb (not used in the 1<sup>st</sup> pilot).

7 people from Àgora staff received the training

- Training for participants the 1st day of each self-training session (1h training)  
Short presentation of the project and training on how to use the Web PDP and Liferay.  
138 participants received the training
- Training for the LearnWeb and Forum (2h)  
15 participants received the LearnWeb training and almost all participants were informed on how to use the Forum  
Different user guides were created to help the users to get familiar with the TENCompetence tooling. The participants had the possibility to look up the following guides on the Àgora Liferay home page:
  - Liferay user guide (Including explanation on how to access to the Web PDP, to use the Self-assessment activities, dictionaries, forum, training guides)
  - LearnWeb user guide
  - Web PDP user guide

In many cases, the participants prefer to print out the guide instead of just looking it up on the computer screen.

Dates of actual implementation (including 2 weeks of holidays)

09/03/2009: Start of the second version of Àgora pilot

12/06/2009: End of the pilot

Workload of learners

On average, the users have worked 6.7 hours on the self-training sessions in the computer room and around 48% of the participants who had Internet at home spent an average 10.9 hours on their competence development plans. The participants also used the tool during the free access hours of the computer room and after the end of the pilot.

Tools used

PCM (*Personal Competence Management*): This tool was used by the experts to create the Competence Profiles and Competences.

Web PDP (*Personal Development Plan*): This tool was used by the content developers to create some activities and to associate the resources and the activities to the different competences. The participants used the Web PDP as the central tool for planning their learning process and accessing the different activities available in the pilot (See Figure A.2.1).



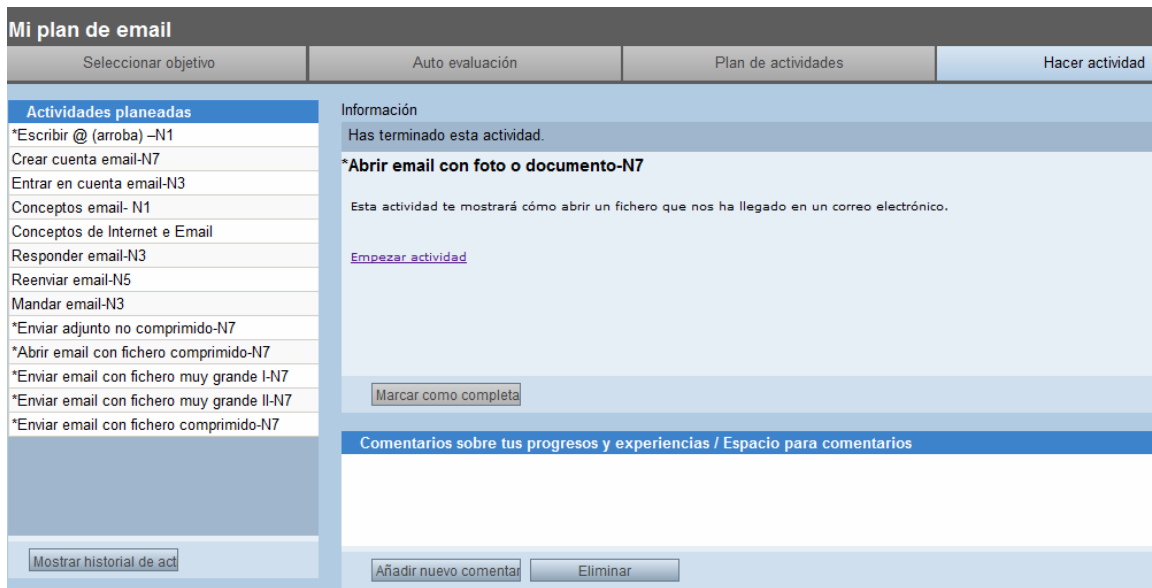


Figure A.2.1 Screenshot of the Web PDP tool

*Recurse*: This tool was used by the content developers to create some of the Units of Learning (UoL) that the pilot contained. It was also used to create different *run* for each UoL and create the accounts for the participants of the pilot (See Figure A.2.2).

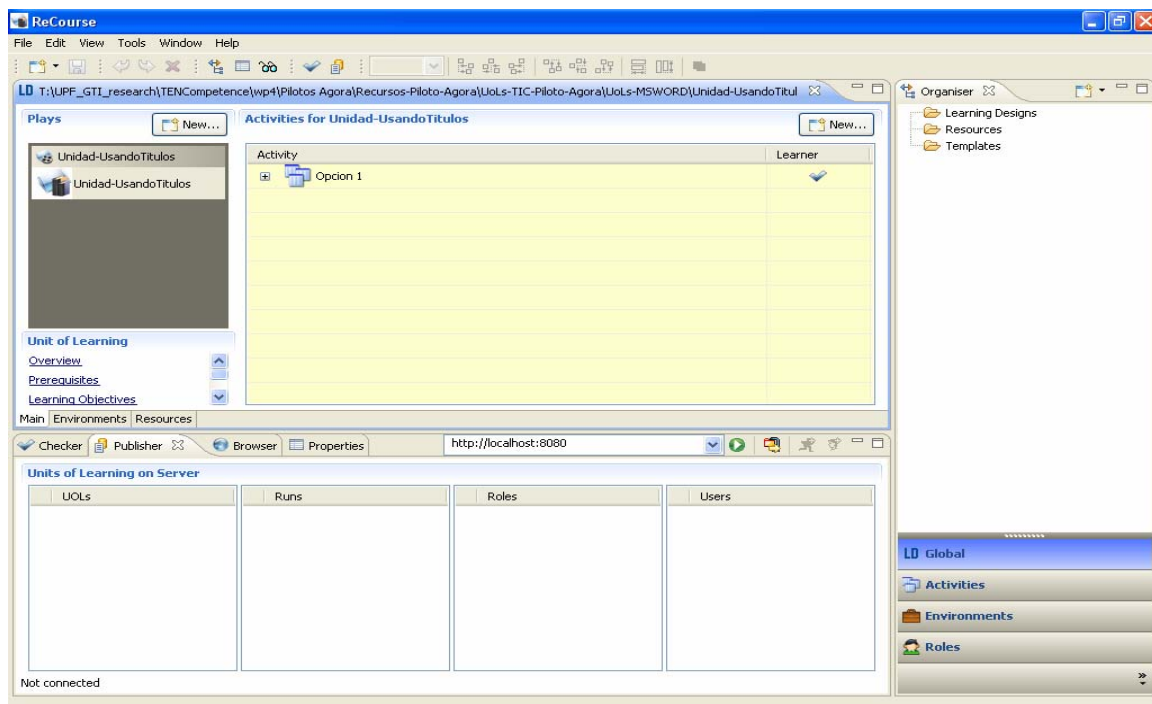


Figure A.2.2 Screenshot of the ReCourse tool while create a UoL

*Runtime*: This tool was used by the participants to carry out the different UoLs proposed.

*LD & QTI runtime*: Those tools were used to run sequences of learning (LD) and assessment activities based on tests (QTI runtime). On one hand, the participants accessed to the *Sled Player* through the *Web PDP*, logged-in and performed the activity. On the other hand, the participant accessed to the assessment activities through the *Liferay* portal and via the *Sled Player*, log-in and perform the test.

### ASSESSMENT SECTION

Cual es la diferencia principal entre responder a un email y reenviar un email?

☐ Reenviar es enviar un email que he recibido a otra persona diferente a la que me lo envio. Responder es mandar un email a la persona que me lo ha enviado

☐ No hay diferencia

☐ Reenviar es enviar un email a la misma persona que me lo ha enviado. Responder es mandar un email a una persona diferente de la que me lo envio

submit

Que significa CCO?

☐ CCO es copia oculta

☐ No lo se

☐ CCO es enviar copia de un mensaje

submit

Figure A.2.3 Screenshot of a test executed by *QTI runtime*

Service Based Learning Design PL...

Abrir email con foto o documento-N7

Logged in as: alouys Logout

**Pasos a seguir**

- ☒ Paso 1: Acceder a nuestro correo electrónico
  - Consulta con tus compañeros
- ☐ Paso 2: Abrir el correo que contiene el fichero adjunto
- ☐ Paso 3: Hacer click sobre el fichero adjunto
- ☐ Paso 4: Seleccionar la opción "Abrir con"

**Select Course:**  
r-Agora-Escribir @ (arroba)-N1 (Participante) Go

**Paso 1: Acceder a nuestro correo electrónico**

Description Objectives Prerequisites Feedback Metadata

Acceder a internet y a vuestro correo electrónico (en esta imagen y posteriores se mostrará el proceso a través de una cuenta de "Hotmail"):

Inicia la sessió

Windows Live ID: AGoraPilot (exemple555@hotmail.com)

Contrasenya: ..... Heu oblidat la contrasenya?

☐ Recordem en aquest ordinador (?)

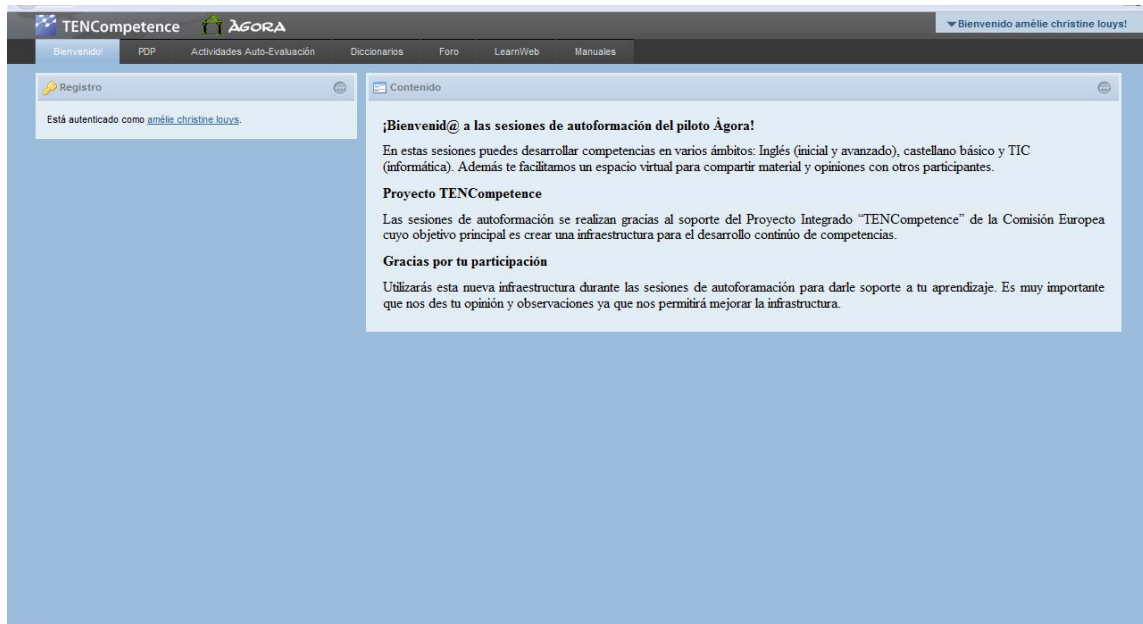
☐ Recordem la contrasenya (?)

Inicia la sessió

Utilitza la seguretat millorada

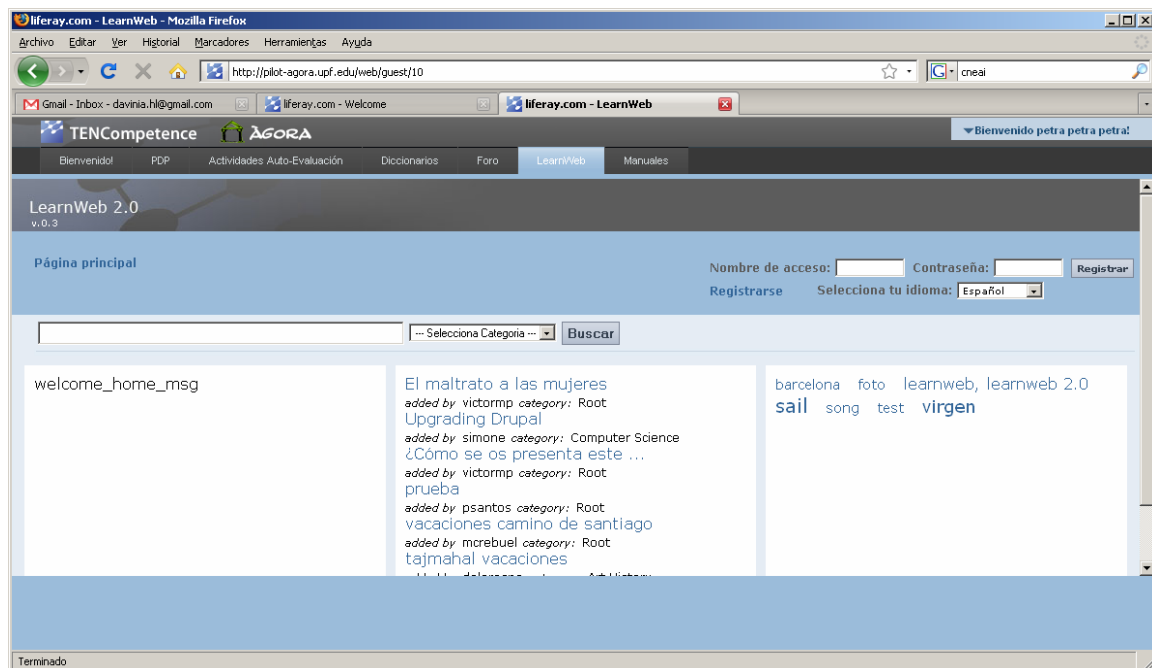
Figure A2.4 Screenshot of the PDP when accessing a UoL executed by the *LDRuntime* player

*Liferay*: It is a portal that integrates the TENCompetence tools.



**Figure A2.5 Liferay portal**

*LearnWeb*: It is a container of Web 2.0. tools to manage and share resources (*photographs, videos, etc.*), *make group work, etc.* It was used by a group of 12 participants.



**Figure A2.6 Screenshot of the LearnWeb tool (home page)**

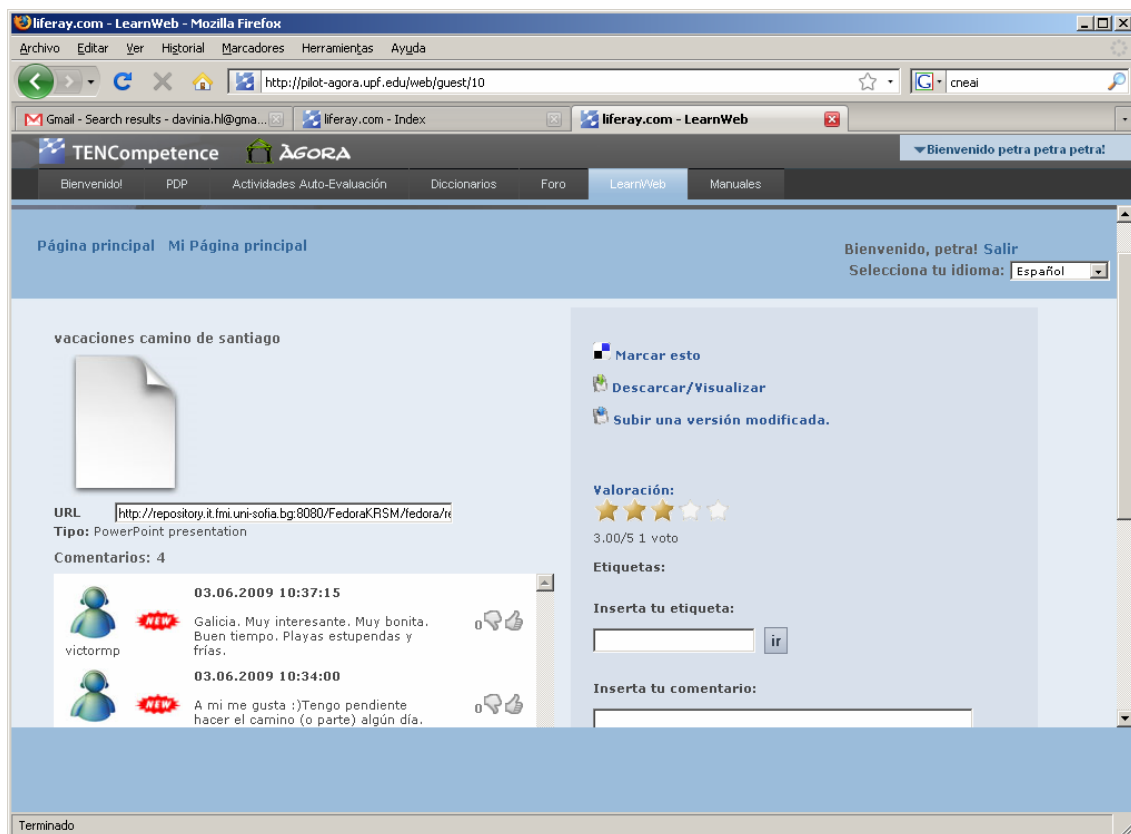


Figure A2.6 Screenshot of the LearnWeb tool

### A.2.3 Evaluation methodology

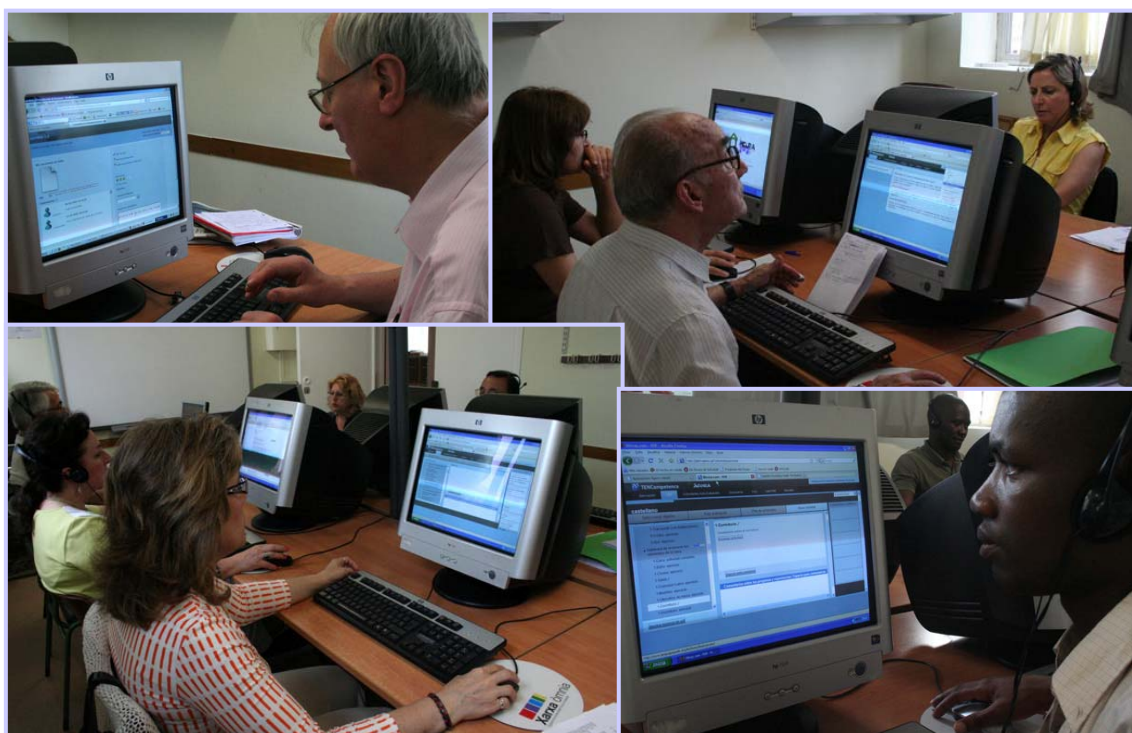
Table A.2.2 indicates the different data sources considered to evaluate the pilot according to the evaluation plan (see TENCompetence D4.3). The same data sources were employed in the second Àgora pilot as in the first one. In Àgora pilot, learners with varying backgrounds and characteristics worked on their competence development in a developing context, which changed from session to session. As a result a simple pre- and post test would not be sufficient to capture this complex process of change. Therefore, an observational method in which data is collected as the pilot develops was applied (Zelkowitz & Wallace, 1998). In particular, a mixed evaluation methodology, combining qualitative and quantitative data gathering techniques, was followed. Quantitative data were considered useful for showing tendencies. Besides, qualitative results were used to confirm or reject those tendencies, to understand them, and to identify emergent outcomes in the specific situation under study (Oates, 2006).

**Table A.2.2 Data sources for the evaluation of the second Àgora pilot and labels used in the text to quote them**

Data source	Type of data	Labels
<i>Pre-test, post-test questionnaires</i>	Quantitative and qualitative participant characteristics, expectations and evaluation.	[pre-test] [post-test]
<i>Observations during the pilot</i>	Record of observations (technical issues, about the activities, interactions with experts and other participants, behaviour, other incidents, etc.) The observations were done by 7 different experts (Àgora staff, UPF researchers)	[observerX-session], where X represents different observers (from 1 to 6) and session is the specific number of face to face session (Àgora computer room) along the pilot duration, when the observations were done.
<i>Focus group with participants</i>	Qualitative: participants' opinions one week before the end of the pilot (04.06.09)	[focus-participants]

<b>Focus group with experts</b>	Qualitative: experts' opinions one week before the end of the pilot (05.06.09)	[focus-experts]
<b>Log files</b>	TENCompetence server logs of the PDP tool (taking into account only the participants' logs)	[logs]
<b>Visits to the web portal and tools</b>	Google Analytics records about the number of visits to the Liferay site and the integrated tools (including self-assessment tests, LearnWeb) as iframes (records including visits of the participants and the supporting staff)	[visits]
<b>Àgora context</b>	Qualitative descriptions of the context characteristics in which the pilot is framed (previous section)	[context]
<b>Observations post-pilot</b>	Records of opinions and observations of what was being perceived in Àgora once the pilot had finished (collected by Àgora staff)	[observations-post]

Quantitative data were collected in two questionnaires: a pre-test answered at the launch of the pilot dealing with the participants' characteristics and expectations of the pilot; a post-test evaluation of the pilot, which was completed by the participants the last week of the experience (see Appendix 2, A.2.6.). The log files generated by the TENCompetence infrastructure also provide quantitative data for the analysis. This information is complemented by the qualitative observations gathered by different (7) observers during the whole pilot in Àgora computer room (see Figure A.2.7).



**Figure A.2.7 Àgora computer room where participants could use the TENCompetence tooling**

Post-observations were also collected in order to understand the informal reactions of the participants when reflecting about the pilot outcomes. Two different focus groups addressed to participants and to experts were conducted one week before the end of the pilot following the critical communicative methodology (typically used in Àgora (Flecha, 2005)). In this way, the focus group consisted in a group of people discussing in equalitarian terms towards understanding and consensus. The researcher is one more person in the group and adopts a



listening attitude. The general context of Àgora was also taken into account when interpreting the pilot results. The use of these different types of data sources enabled us to reach valid conclusions by triangulating the data from the different sources (Guba, 1981; Oates, 2006). For each separate aspect of our research question, the available data from the various sources was compared, and conclusions were drawn from the comparison. Four different researchers have participated in the analysis and interpretation of the data. The results were compared and discussed among the researchers (investigator triangulation). The results are discussed in the next section

## **A.2.4 Evaluation results**

### **Participants' characteristics**

A total of 138 participants, comprising 95 women and 43 men, started with competence development in the second version of Àgora pilot. Note that from the 138 participants who started the pilot, 95 participants completed the pilot, of whom 62 were women and 33 men [pre-test] [post-test]. All the results of this section are based on the 95 participants who completed both pre-test and post-test. The high proportion of women reflects the high number of women in Àgora in general [context]. Their mean age is 57 years old, with a standard deviation of 12.8 years. All participants were between 22 and 84 years old [pre-test]. 17% of them were born out of Spain, which is representative of the proportion of foreigners in Àgora [context]. Their country of birth is very diverse, 4 are born in Morocco, 2 in Colombia, 2 in Guinea-Bissau and the other countries are represented by one person, i.e. Senegal, Pakistan, Chile, Gambia, Tunisia, Brazil, Belgium and Russia. 39% of the participants also took part and completed the 1<sup>st</sup> Àgora pilot.

The educational level of the participants is diverse, did not complete primary school (8%), primary school (17%), secondary school first stage (8%), secondary school (22%), secondary vocational education (15%), higher vocational education (15%), and university degree (15%) [pre-test]. Their professions are also varied: 30 participants are retired, 11 do administrative work, 7 are housewives, 3 are secretaries and the rest works in a wide range of professions (over 30 different occupations) [pre-test]. A minority of participants provided information on their job function [pre-test]. Some interesting combinations occur such as farmer (profession) with bakery assistant (job function), painter with housekeeper, and designer/landscape gardener with hotel doorman [pre-test]. All in all, although Àgora is mainly addressed to people without academic degree, the competence profiles developed in the pilot have shown to interest a wide range of educational profiles and professions.

Almost half of the participants consider themselves as beginner with regards to their proficiency level in the competences chosen (46%), 26% intermediate, 22% novice and 4,2 % advanced [pre-test].

In general, all the goals for competence development investigated are relevant to the participants. When asked which of the goals were most important to them, they answered equally to acquire practical knowledge (97%) and to improve my social skills (97%) and also in high proportion to find out what things I will be able to learn/improve in the future (94%), and to acquire theoretical knowledge (85%) [pre-test]. Probably the high percentage of participants who answered that the social skills were most important is because the high majority of them were interested in developing English (Basic and advanced) and Spanish language skills. The fact that most of the competences taught in the school are functional focused, upon request of the participants themselves, also explain the high percentage of people who consider that the practical skills were most important.



The experience with competence-based training is rather low. 58% of the participants either had never followed a competence-based training, or didn't know what a competence-based training was. The remaining 42% had followed competence development training either once (24%) or two or three times (18%) [pre-test]. It is important to mention that many participants are not aware that they have been developing competences in other Àgora training activities besides the first TENCompetence cycle 1 pilot (as Àgora did not use the term "competence").

#### *Experience with web-based learning*

The experience of the participants in using the computer to learn and/or communicate is split equally between almost half of the people having either used the computer often (30%) or very often (19%) and the other half of the people having either never (6%), occasionally (22%) or sometimes (22%) used it [pre-test]. In addition, when the participants were requested to explain their experience with the above mentioned tools, most of them refer to Google in a general way, and more specifically: "I usually use Google to search when I have a doubt, when I am interested in something, music, etc"; "Google, to search information in order to do my homeworks" [pre-test]. Experience with using a virtual campus is low, with 80% having used it either never (55%) or occasionally (25%). The use of Google for searching information is the most used Internet functionality (87%). A minority have ever used a chat (30%) or shared music, photographs or other documents on Internet using the Web2.0 tools (35%) [pre-test].

#### *Facilities*

58% of the participants have Internet at home, whereas 42% have not [pre-test].

#### *Motivation*

A majority were intrinsically motivated: 68% wanted to learn more just because they like it [pre-test]. This is in line with Àgora participants in general, who are mainly adults who have been excluded from formal education and are characterized by their intrinsic motivation to learn [context]. A high percentage (70%) of the participants had a reason related to acquiring better skills with the competence at hand (support in something which is difficult for me (30%), improve my level in something I already know (40%). 28% had a reason related to their job: 18% wanted to improve in their current job and 10% wanted to get a new/better job. For 27% of the participants, communication with family and friends living in a different place was a reason for registering. 26% wanted to be better integrated in the city. 12% wanted to register because they have participated in the first Àgora pilot and liked it [pre-test].

#### *Learning style*

Most participants (62%) prefer to have the choice between choosing their own learning path and to be guided by the system. The remaining participants prefer to be guided by the system (23%) than to choose their own learning path (12%) [pre-test].

### **Results of the experience**

95 out of the 138 participants who started the pilot completed the post-test questionnaire. After verifying with the participants themselves, the reason why they decided not to attend some of the training sessions was typically as follows [observations-post]:

- preference to use the PDP at home (this reason increased a lot with regard to the 1<sup>st</sup> pilot as the PDP is web and thus some participants prefer to work on their development plans from home),
- health problems (most of the participants are elderly),
- drop out (difficulty to use the computer, inconsistency with work/family timetable).

### General

The 83 participants who used PDP spent as average 6,7 hours on the self-training sessions in the computer room. To this number of hours has to be added the time that 40 participants spent on competence development at home, i.e. 10,9 hours, with a minimum of 1 hour and a maximum of 51 hours [post-test].

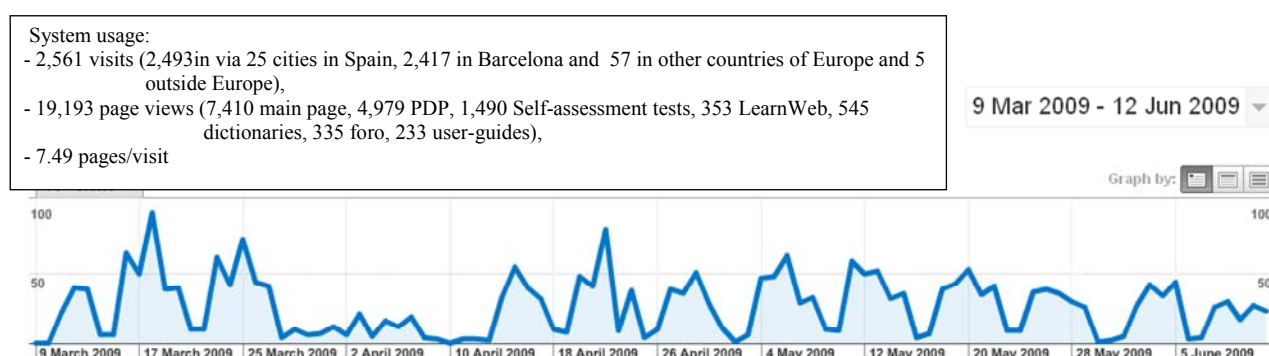
From the use of the TENCompetence core services 95 individual users were identified. Over the period of the pilot 1021 user sessions were registered. The difference in the identified system users and the number of participants can be explained through re-registrations of participants who forgot their passwords. The quantitative results show that the participants who used the PDP at home spent more time on their competence development plans than in the computer room of the school. It was observed that the participants preferred to work from home as they had more time to use the tools and no timetable constraint:

*“I think this course is interesting because you can use the program whenever you want and because there is no obligation to attend the self-training sessions in the school as you can do it at home at any time [post-test]”; “Some of self-training sessions had little assistance as for instance the time-slot from 3pm to 4pm. Participants explained that it was not a convenient time for them. For this reason, some of the participants decided not to attend the self-training sessions but to continue working from home [observer6-session3]”; The time to practice in the computer room was insufficient. 1h is too little. For those who have Internet at home, no problem [focus-experts].*

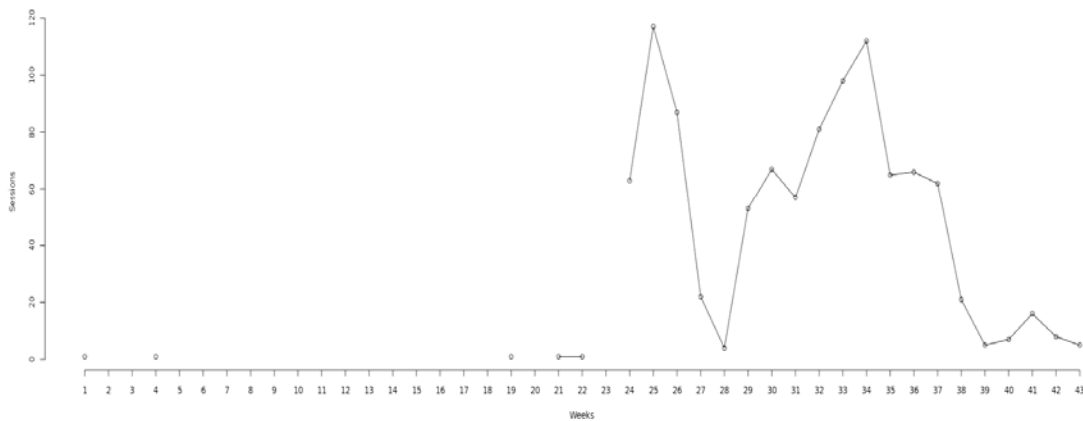
They also reported that it is easier to concentrate at home:

*“I prefer to do it at home than in the computer room of the school because I need to concentrate and it was difficult to do in the computer room as there were participants studying different things [post-test].”*

Figure A.2.8. indicates the usage of the TENCompetence tools during the pilot duration according to the Google Analytics records of the Liferay system [visits]. Figure A.2.9 shows the number of participants using the PDP tool during the pilot and beyond and Figure A.2.10 illustrates the number of sessions of PDP tool per week [logs]. For these numbers it is important to understand that Google analytics does not discriminate between different user groups. Therefore, the underlying data includes requests by developers and technical support staff. There is an off-peak period (approx. 2 weeks at the beginning of April) which corresponds to the Easter holidays when the school was closed.



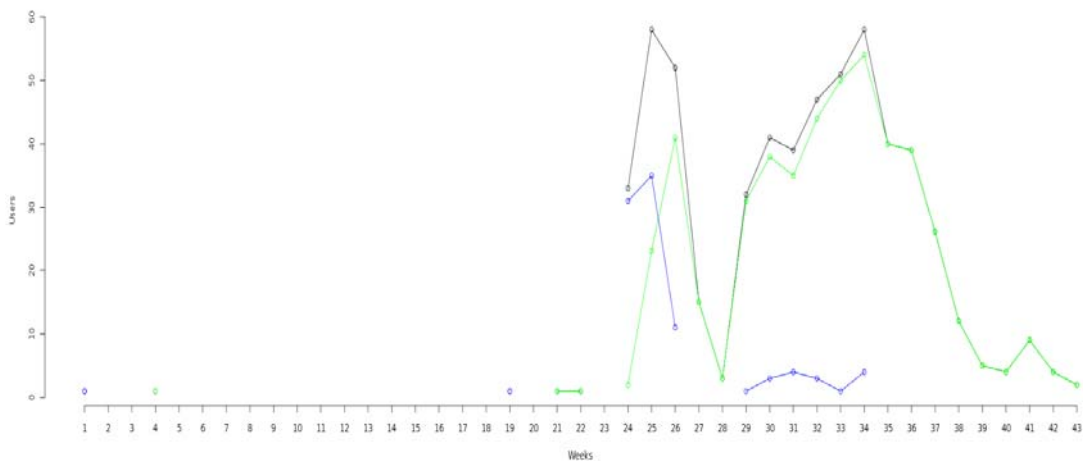
**Figure A2.8 Usage of the TENCompetence system during the official period of the pilot [visits]**



**Figure A2.9 Number of sessions registered by the TENCompetence core services**

The figure also shows short off-peak periods during the week-ends. However, the activity never stopped completely as the users continued using the tools during these off-peak periods but at a lower scale [visits]. Moreover, there were 2,561 [visits] to the Liferay site and the integrated tools as iframes throughout the pilot, including 2,493 visits from 25 Spanish cities, 57 visits from other European countries and 5 from outside Europe [visits]. The use of the tools from other cities reveals that the participants made use of the TENCompetence tooling outside the context of Àgora pilot setting. This is in line with the results of the log files which stress that after the active phases some participants continued to use the TENCompetence PDP tool.

The usage during off-peak phases is relatively low but stable between 3 and 9 distinct users per week [logs]. During the active course phases more participants were active. Figure U shows the activities of the participants including their first appearance in the system (blue line). The figure shows that during the working phases of the course between 32 and 58 individual users were recognised by the TENCompetence core services.



**Figure A2.10 Weekly numbers of active participants using the TENCompetence PDP tool during and after the pilot , incl. new (blue) and returning users (green) [logs]**

The Google Analytics of the Liferay site show that the system was used significantly: users (participants and other supporting staff involved) viewed a total of 19,193 pages, including 7,410 Liferay views, 4,949 PDP views, 1490 self-assessment tests views, 353 LearnWeb views,

545 dictionaries views, 335 forum views and 233 user-guides views [visits]. They were quite active users as they viewed an average of 7.49 pages per visit [visits].

#### Technical problems

51% of the participants indicated that there were no problems whatsoever, 24% said that there were hardly any problems and 6% was largely affected. No major technical issues were reported by the participants in the post-test. No participant except one has suffered Internet related problems. The observations throughout the pilot show that the main technical problems encountered were:

- **Viewing issue: some functionalities of the tools do not appear in full screen because of its integration in Liferay as an iframe**

On one hand, a 3cm stripe covering the bottom of the Liferay page made the use of the tool complicated as part of the functionalities were hidden by the stripe. As the PDP is integrated in Liferay, it affected all the PDP windows. In addition, the log-in/log-out of the PDP is located too near from the Liferay scroll-down menu and when trying to log-out of the PDP, the Liferay menu pop-out:

*“The participants get confused using the PDP as they cannot see the whole program on one page, some functionalities/buttons are not visible without scrolling up/down as a blue fringe is covering part of the screen. For instance, the “ok” button when you open a new plan in the PDP, “history/open plan” buttons [Observer1-session8]”; “The “log-out” button of the PDP is hidden at the top right part of the screen and sometimes the participants don’t see it. When they finally try to click on the “log-out” button, the drop-down menu of Liferay welcome page appear (just on top of PDP log-out button) and they get confused [Observer1-session7]”.*

On the other hand, the viewing of the LD guided activities was affected as they did not appear in full screen:

*“It would be good if the guided activities appear in full screen, without the need to scroll down, right scroll, etc. (Image is too big). They get confused [Observer3-session5]”; “The explanation of the guided activities didn’t appear in full screen, they get lost in the system without knowing where to go [Focus-experts]”; “They thought that they had to click where the explanation is given. This explanation did not appear in full screen so they needed to scroll down and right. They got lost [Focus-allexperts]”.*

- **“Mark as complete” functionality failure**

*““The mark as complete” functionality doesn’t work properly. It marks activities done previously as completed but not the one selected [Observer1-session6]”; “Sometimes the “Mark as complete” doesn’t work and they think they are doing something wrong [Observer2-session7]”; “The user “xxxxxx” experienced difficulties to pass some activities to the “history”, some of them remain in the planned activity listing [Observer4-session4].”*

- **TENCompetence tooling not compatible with Internet explorer**

As the TENCompetence tooling is not compatible with Internet Explorer, the participants needed to install Mozilla Firefox in order to make it function.

*“The participants have difficulties to make the PDP/Liferay work at home, even using the user-guide. They didn’t have Mozilla Firefox and had to install it to make the tools work [Observations-post]”; “No participants had Mozilla Firefox installed in their computer at home. They asked for a guide to know how to use it. It would be easier if one could use the tools with Internet Explorer [Observer1-session8].”*

- **New activities added not displayed (partly solved)**

It was observed during the pilot that the new activities added in the PDP could not be shared with all users. As indicated by the observers:

*“When opening a plan with the user of the participants, some content are not visible (English verb activities) [Observer4-session4]”; In the Internet competence profile, when opening the activity \*usar ratón, another activity appear (Guía Campsa). The activity Search route without*

*address doesn't work. It all works if you create a new user [Observer1-session10]; "You can only see the new Spanish activities I have added with my user. The other users don't see them [Observer1-session6]."*

- **Linktool (often down):** not possible to access to the guided activities and self-assessment activities.

*"It is not possible to access some of the self-assessment activities. An error message appears [Observer2-session2]"; "The guided activities do not work. It seems to be a Linktool problem [Observer1-session7]. "It is not possible to open any of the guided activities. A Linktool error appears [observations-post]."*

### Competence development

The quantitative results highlight two scenarios regarding the number of competence profiles the participants worked on: one part (57%) worked on one competence profile only, whereas another part (43%) worked on different competence profiles, i.e. 32% on two competence profiles, 9% on three and 4% on four [post-test]. The qualitative data show that different situations occurred: participants who opened a Basic English plan after having worked on Advanced English competences and vice-versa, participants working on "Internet" who wanted to open an "Email" plan to complete their knowledge, people working on English competences who opened ICT related competence profiles and vice-versa, etc. For instance:

*"First, I worked on the PowerPoint and I was thinking of doing the rest of it later on. I also wanted to brush up my English knowledge. And now, it is also possible to learn how to insert music in a PowerPoint presentation. The capacity of it is huge [focus-participants]"; One participant created today a new plan of "Internet" and "Basic English" competence profile [Observer6-session7]"; "In addition to the "Basic English" plan they created at the beginning, many of them created a new plan of "Advanced English" to be able to practice more listening abilities [Observer1-session7]."*

Table A.2.3 gives an overview of how much participants have learned with regards to the different competence types: knowledge, functional skills, social skills, and reflective skills [post-test]. According to the quantitative results, most of the participants have learned "much" or "not little, not much" with regards to knowledge, functional and reflective skills. The majority learned "almost nothing" or "little" regarding social skills. However more than half of the participants have discovered what things they can learn/improve in the future:

*"I would like that it could continue in time and have the possibility to use it when I want at home and thus keep me up to date and to improve my knowledge and also to have the opportunity to have a look at the other courses (competence profiles) [post-test]."*

Increased competence	(almost) nothing	Little	not little, not much	much	very much	blank	mean
Knowledge	4	14	33	31	1	0	3,1
Functional skills	1	18	29	34	1	0	3,2
Social skills	29	15	15	18	4	1	2,4
Reflective skills	5	9	21	44	4	0	3,4

**Table A.2.3 Percentage of participants indicating how much they have learned with regards to the difference competence types**

### Appreciation of this way of learning

The average appreciation is that the participants enjoyed this way of learning. 75% of the participant enjoyed this way of learning (very much). 2,5% did not enjoy this way of learning



while 20,5% held a neutral position [post-test]. The qualitative results support this tendency and stress that the participants appreciated this way of learning mainly because they could work at their own rhythm, had flexibility to learn, and could choose the activities according to their own level of proficiency. In addition, the participants' appreciation of the pilot is supported by their interest in using the tool at home, at the library or in any internet connection place.

*"A participant who is working on Spanish competences asks if there will be other self-training sessions in the future and if she will be able to continue doing it from home. She thinks this way of learning is very convenient as she hasn't got much time because of her 3 children. Therefore, this way of learning helps her to combine her family life with the possibility to learn [Observer1-session10]"; "It would be good for me to continue as the school does not offer English classes adapted to my proficiency level. I would need a more advanced level. With the program, I can work on my own rhythm, select the activities according to my level of proficiency and work on the elements I would like to refresh [observations-posts]."*

In addition, a large majority of participants (90%) wants to continue to develop this competence(s) further in the future, 8,5% is not sure, and only 1,2% does not want to develop the competence(s) further [post-test]. This is supported by the fact that the participants continue using the tools after the end of the pilot. Figure A.2.11 shows the record of the visits to the web portal and tools indicating that there were 301 visits between June 12th and July 20th. The visits were mainly from Barcelona (258) but also from other cities in Spain (18) and in Colombia (4) [visits]. In addition, the log files analysis in also indicated that the participants used the tools outside the Àgora pilot setting, i.e. during holidays, week-ends and after the end of the pilot [logs]. Moreover, the participants were active and used the main functionalities of the tools: they viewed 1336 pages, including 612 Liferay portal views, 304 PDP views, 71 self-assessment tests, 47 LearnWeb views, 43 dictionary views, 34 forum views and 12 user-guides views [visits]. Moreover, Figure A.2.12 specifies that the average number of PDP sessions per user and week was mostly stable around 1.75 sessions per active user during the last month reported (end of June-end of July) [logs].

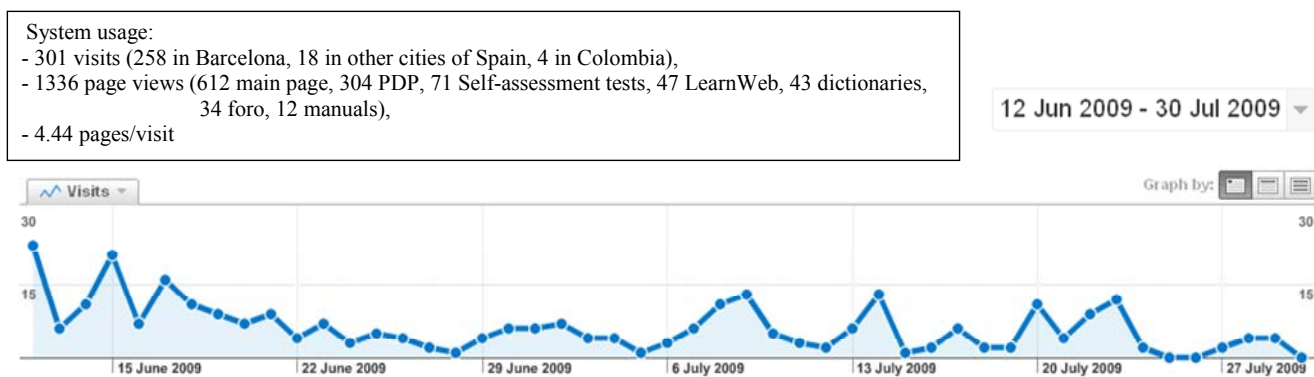


Figure A.2.11 Usage of the TENCompetence system after the official end of the pilot [visits]

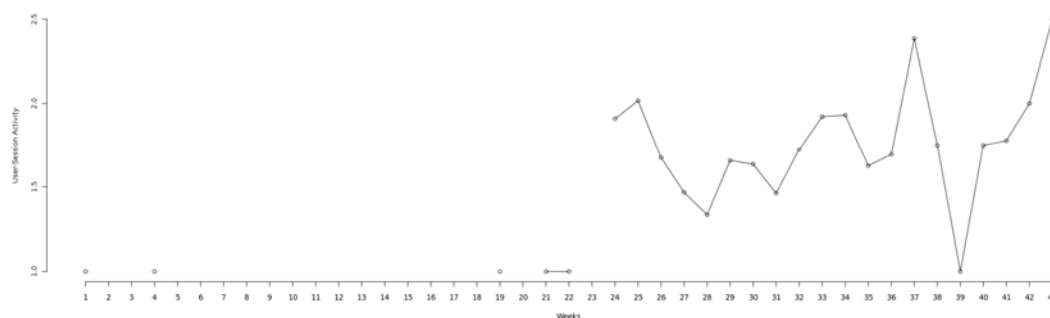


Figure A.2.11 Average number of user session of the TENCompetence core services [logs]

This tendency is also reflected in the qualitative data. It was observed that not only the participants would like to develop the competences further but also had discovered in the competence profile list that they could learn about other competences they did not think of before and even new competences not listed in the system. Therefore, a continuous interest in the personal competence development could be identified in this non-formal setting. The participants in the focus group agreed that they would like to use the TENCompetence tooling after the end of the pilot in order to continue developing competences. They expressed their disappointment when they found out that they might not be able to use the tools after November 2009:

*Design, drawing... Using it for five more years. I would like to brush up my English. Be able to enter with my log-in and continue developing my skills [focus-participants]"; It is a powerful application. It should be extended to other competence profiles... it could also just stay as it is now. The fact the project is ending... is the same as saying that you have opened a door but that in November it will be shot [focus-allparticipants]"; "Opening windows, it opens a world, you lose your fear. One could continue using the tools for an unlimited time [focus-participants]".*

### Impact

It was asked in the post-test, whether participants already experienced benefits from participating in the pilot. Of the 82 participants that answer this question 58,6% indicate they experienced (very) much benefits, 22% hold a neutral position, while 19,5% say little (14,6%) or (almost) nothing. On one hand, the most mentioned benefits in the post tests are directly related to the competence profiles and learning resources of the PDP, i.e. most reported English learning benefits (most participants worked on English competence profiles), the use of the computer or a combination of both:

*English grammar", "to brush up on my English knowledge, the possibility to listen to songs, read English texts", "I learned more about listening comprehension, not too much, but I understand more now", "to improve my English listening comprehension and resolve exercises", "to refresh knowledge acquired and new knowledge that I forgot as I didn't practice. I have improved my English and phonetic"; "I have acquired more abilities and it is easier for me to use the computer in general", "I learned to use the computer but I need more practice to be at ease", or more specific abilities "to get familiar with Internet", "to use the email"; "to learn to write and speak, to use the computer", "to get familiar with Internet, to search the English programs, to learn English through the computer [post-test]."*

On the other hand, participants indicated that they also benefited from this new way of learning and pointed out that they have lost their fear of the computer and new technologies:

*"Simplicity to get to know new things", "I have learned things I haven't learned before", "yes, because I can practice with a new system". "I overcame my fear of the computer", "New form of knowledge. To overcome shyness. It forces me to know more about computers. I feel more happy as I like to learn [post-test]"; It has been a very positive experience, I lost my fear of many things. It's a way to get started. It helped me to start dealing with these types of things [focus-participants]"; "my family is amazed about my huge progress using the computer [focus-participants]."*

### Appreciation of ICT learning resources (20 participants)

According to the participants who worked on ICT learning resources, 11 participants (55%) thought there were (very) easy, 6 (30%) were neutral and only three (15%) said they were difficult [post-test]."

Almost everyone found the resources interesting (70%) or very interesting (25%). Similarly, 90% said that the resources were (very) useful, 5% are neutral and another 5% think they were useless. On the question whether the resources matched the learning needs 5% said hardly, 20%



moderately, 45% largely and 30% completely [post-test]. These very positive results regarding the appreciation of the ICT learning resources are softened by the observations made by the participants as they didn't appreciate or/and had difficulties to do the activities they had to perform separately (guided activities and simple activities). They did not understand that they could not practice directly where the instructions of how to perform the activities is given. This happened to cause confusion and demotivation. Some of the participants finally preferred not using the PDP and practiced on their own or with the help of the expert.

*"It is difficult for the participants who work on the PowerPoint guided activities to follow the steps of the explanation and at the same time to practice with the PowerPoint program of the computer [Observer2-session3]"; "In the Internet guided activities, they still get confused with regards to the image of the activity and the new window they need to open to practice what they have learnt. Many times, it happens that they stop working with the guide and surf the web instead [Observer3-session6]"; "They ask the expert instead of following the guided activities [Observer3-session5]."*

The participants also made suggestions in order to improve the latest:

*"The theory is good but then it is complicated to apply. Is it not possible to make the activities interactive, to practice directly where the explanation is given?"; "It would be good to have an additional "help" option, to support the users that get stuck in the process. As in Word or Excel [Focus-participants]".*

*Other learning resources, i.e. language resources (73 participants)*

In general, the same positive appreciation of the learning resources (but at a lower scale) appears for those who worked with language resources. 28 participants (38%) said that the resources were (very) easy, 31 (42%) were neutral and 14 (19%) said they were difficult. 63% found the resources interesting and 19% very interesting. 14% are neutral and only one participant thought they were very uninteresting. 84% said that the resources were (very) useful, 14% are neutral and another 1% think they were useless. On the question whether the resources matched the learning needs 2,7% say not at all, 1,4% said hardly, 32,9% moderately, 49,3% largely and 12,3% completely.

All activities related to the language competence profiles were interactive as the large majority of the participants of the 1st pilot had a preference for this type of activities. This had a positive effect on their motivation and ability to learn. Taking into account the qualitative data, it seems easier for the participants to work on the competence profiles related to languages, to get familiar with the system, and to be more autonomous in their learning process.

*"They appreciated the English competence profile. Exercises, listening, more dynamic. To learn English, it is really great [focus-experts]"; "There are very motivated to learn. Some of them do many activities in a row. The presentation type of the contents (audio, video, interactive) and the possibility to choose the activities themselves are very motivating factors [Observer4-session3]"; "In general, they appreciate the possibility to listen to the English lessons, as they cannot do so with the books in the English class [Observer7-session6]; The "songs" activities have a lot of success among the English learners. A woman is singing without realizing that everybody can hear her [Observer1/3-session5/6]"; "They worked on the English activities in an autonomous way and got used to the system quicker. Very happy with it. 2 out of the 3 participants who were working with the Internet competence profile gave up [Focus-experts]"; "The participants working on English activities don't ask much whereas the one working on ICT related activities ask continuously [Observer1-session4]".*

Furthermore, it was observed that the participants had troubles to go back to the PDP tool once they had finished an activity. All the interactive activities were external web pages with their own structure. It happened that they had difficulties to understand that the activities were external to the tool and tend to follow the index of the external page or click on advertisement links instead of going back to the PDP:

*"Some of the participants get lost in the web pages of the activities by clicking on "next activity" or in advert links. They do not remember to close the activity tab and go back to the PDP plan"*

[Observer1-session7]”; “Some participants get confused when they perform an activity as they don’t realize that they are on another Internet page outside the tool and they start surfing on other pages” [Observer6-session3].

Finally, it was observed that the creation of new learning activities during the pilot, upon request of the participants themselves, created a very positive attitude and an extra motivation to learn.

*“They are very happy with the new PowerPoint activity. They have a good time doing it [Observer1-session9]”; “The participants feel really motivated with the new Spanish contents, as the activities are more difficult, it is like a challenge for them [Observer4-session5]”; “The new Internet activities have created a positive attitude among the participants [Observer1-session8]”; “A participant got really happy when she realized there was a new PowerPoint activity, adding music to a presentation, as she always wanted to know how to do so” [Observer1-session5].*

### Control of own learning

Six questions on this, one summarizing questions: I felt in control of my own learning. We measured six aspects related to the control of own learning. These were:

- In the beginning, I quickly got an overview of the competences involved and my current proficiency level
- I had a good overview on what I had done and what I had to do
- I had insight into how my learning progressed
- I had the feeling that I learned exactly what I wanted to learn
- I had the feeling that I could plan my own learning
- I felt in control of my own learning

Answers to the six questions correlated strongly, thus that we can say that together they measured the extent to which participants felt in control of their own learning. When rounded to the most nearby round value, we obtained the following scores: agree (completely) (62%), neutral (29%), disagree (completely) (9%). We do see however that on “I had the feeling that I learned exactly what I wanted to learn” people agreed less than on other statements” [post-test]. Qualitative results confirm this positive view as participants explained how they benefit from the PDP functionalities and structure, i.e. being able to work at their own rhythm, being able to work from home (when it suits them best to learn), being able to choose the activities according to their own level of proficiency, being able to have a control on which activities they have done and the one remaining to perform (see also *Self assessment and planning, Mark activities as complete*, etc.)

*“You can work at your own rhythm. You can repeat an activity [focus-participants]”; “I benefit from the program because I can progress on my own and whenever I have time to practice [post-test]”; “All in all, they like to perform the activity at their own rhythm [Observer1-session 5]”; “Several participants comment that they like this way of learning because although they are following a course in advanced English in the school, they think their level is lower and therefore the existence of different levels in the PDP structure allow them to work according to their own needs and refresh basic elements [Observer1-session6].”*

### Collaboration with other participants

Four questions were asked on the appreciation of collaboration with other participants.

- I had lively and stimulating discussions with other participants in the pilot
- I learned a lot from other participants in the pilots
- Other participants in the pilot were able to answer my questions
- I provided useful help to other participants in the pilot

Around half of the participants seemed to have collaborated (47%) whereas the other half did not (45%).

It should be stressed that the self-training sessions do not encourage the participants to collaborate but to work on their own development plans. In addition, the participants tend to ask the experts when they have a question.

The qualitative results confirm the difference in the level of participant collaboration and provide further explanation. The differences in the structure of the learning resources might explain the diverging statements. All learning resources related to the language competence profiles were interactive, provided self-correction, and most of the content had listening options. These learning characteristics entail the participants to collaborate less as they had the headphones on and would get a feedback by the system on how well they had performed the activities. Though, some of them collaborated doing exercises together. The structure of the ICT activities (both simple and guided) did not include self-correction or listening, which made the potential of collaboration between the participants higher. However, considering the observation data collected during the pilot, their level of collaboration was also divergent.

*“Two participants work together on the new PowerPoint activity [Observer1-session9]”; “Some participants work in couples in order to do English exercises together as for example a crossword exercise and then comment the results [Observer7-session6]”; “The participants working on the Spanish competence profile help each other at the beginning to enter in the system and they work on their own [Observer4-session3]”; “They ask the experts. There is little collaboration between the participants [Observer2-session2]”; “There are no questions. People progress autonomously in the activities [Observer1-session10].”*

#### *Self-assessment with the PDP*

The majority of the participants (64%) used the self-assessment functionality either for most (21,3%) or all competences (43%), 18,7% for a minority of competences, 8% for half of them, and 9% have not used it. More than half of the participants (53%) found it (very) easy to determine their own competence profile, 20% say it was (very) difficult, 23% took a neutral position. 2,7% do not answer the question. A large majority (71%) consider the self-assessment functionality either as very useful (19%) or useful (52%). 16% is neutral, 8% think it is useless, 3% very useless and 1% do not answer [post-test].

Note that the participants were recommended by the experts to use the self assessment functionality of the PDP. According to the quantitative results, 68% of the participants consider themselves beginners (46%) and novice (22%), which might explain that many of them found it (very) easy to determine their proficiency level. In addition, it was observed that many participants wanted to start from scratch and therefore automatically have chosen the lowest level available.

*“I want to refresh my English and begin from the beginning” [observer1-session1]”; “Many of them explained that there didn’t know much and wanted to start with the easiest activities [observer2-session2].”*

#### *Self-assessment with the “Actividades Auto-Evaluación” (test)*

The “Actividades Auto-Evaluación” tab within Liferay contains self-assessment tests with the aim to help the participants determining their own proficiency level.

A majority (65%) did not perform the self-assessment tests (36%) or did it for a minority of competences (28%), 18% for half of their competences and 16% for most (8%) or all competences (8%) [post-test]. The participants who used this functionality were very active as there were 490 visits to the “Self-assessment activities” throughout the pilot [visits]. The majority of them took the test before starting working on activities of a new competence profile, when they had to select the proficiency level (30 participants) and in a lower proportion after they had completed all activities of one competence profile that they wanted to perform (13

participants), and when they were half-way working on the activities of one competence profile (5 participants). Despite The overall rating of the self-assessment functionality is very positive considering the 70% who rate this functionality as very useful (26%) and useful (44%). 8% took a neutral position, 1,4% rate it as useless and no one as very useless. 20% did not answer

According to the qualitative data, the difficulty to access to this functionality, located outside the PDP, in the Liferay menu, including an extensive list of tests, might explain why a high number of participants did not perform the tests (see *Other technical issues*). In addition, as a majority of participants (68%) already knew they had a novice or beginner level [post-test], *most of them did not feel the need to perform the self-assessment tests* [observers-all]. However, the participants who performed the tests felt quite satisfied as it helped them to determine their proficiency levels. However, they would have liked the system to inform them when they did not answer correctly in order to help them understand what they did wrong:

*“It helped me as I was informed that I could choose a higher level of activities [Focus-participants]”; “To perform the tests at the beginning of the pilot is difficult as the participants are not familiar with the system yet and the tests are located outside the program. They got confused. They appreciated the possibility to do the tests but they were expecting the system to give the right answer. They understood it more as an exercise, not as a test. They performed the same tests again at the end of the pilot and were expecting the system to tell them whether they had improved or not [Focus-experts]”; “The participants informed that in some cases there was no feedback and couldn’t see if they have improved, etc [Focus-experts]”; “It would be good if the tests could be part of the PDP self-assessment functionality. It is not practical that it is outside in Liferay. It would also be interesting for the participants to see their progress throughout the pilot [Observer3-session11]”.*

Finally, It is worth underlying that there were 71 visits to the “self-assessment activities” after the end of the pilot (June 12<sup>th</sup> – July 20<sup>th</sup>) [visits], which stress the relevance of this tool for the self-learning support.

#### *Plan activities*

Most participants (78%) let the system generate a plan, based upon their self-assessment. 22% let the system generate a plan but not based on the self-assessment. Note that the participants were recommended by the experts to do the self-assessment part. They did not do it on their own initiative.

66% of the participants used one method to select the next activity to perform from the list of activities and 16% used more than one method. Participants differed in the way they selected the next activity to perform. The majority (39%) started with the activity thought to be easiest and then progressed to the activities thought to be more difficult. A minority of the participants performed the activity in the order they were listed (19%), they started with the activities they liked most and then progressed to the activities they liked least (16%), or first performed the activities related to one competence and then the activities of another competence (13%). They were hardly any participants who had chosen the activity randomly (8%), or who first performed the activities they disliked and then the ones they liked (3%), or who started with the activities they thought were most difficult and then progressed to the one they thought were easiest (2%).

All activities of the PDP are listed in a logical order, by competences and by levels of proficiency (4 levels per competence profile). Observations show that this structure facilitated the identification of the activities and might explain that only a few participants choose the activities randomly: *“It is easier to identify the activities as they are better structured and organized [Observer1-session4]*. As indicated in the quantitative results, they used divergent criterion to select the next activity to be performed.

### Resources at the SLeD server

Of the 83 participants, only 18% made use of the learning resources related to ICT, i.e. guided activities, complete courses or single ones. They differ largely in their appreciation of the learning resources, as 47% preferred the guided activities, 40% preferred the simple activities either because they could access to them directly from the PDP (27%) or didn't like the guided activities because they added another layer (13%). In addition, one participant explains. 13% worked well both with the guided and simple activities and one participant hardly noticed the difference between the different structures [post-test]. The difference in the participants' experience in using the computer [post-test] might explain the disparity in the appreciation of the different type of ICT learning resources (see *Experience with web-based learning*). Therefore, it is important for the participant to be able to choose between different learning resources as they differ a lot in their appreciation. According to the qualitative results mentioned previously, the participant would prefer if the ICT resources would have been interactive, to have the possibility to practice directly where the explanation is given without having to go outside the tool to practice. Some technical issues also hindered the realization of the guided activities as they didn't appear in full screen (See *Technical problems, Appreciation of ICT learning resources, and Other technical issues*)

### Marking activities as complete

72% of the participants made use of possibility to mark activities as complete. The remaining participants who did not use this functionality differ in the reasons not to do so, 7% because they didn't know how to use it, 6% because they didn't notice that the possibility was available, 6% because they did not consider it as helpful, and 8% for another reason such as: "*I wanted to be able to do the activity again*" (most of them), and one adds "*this applied to the activity I was not sure if I had done it well*". One participant indicates "*I simple forgot*" and another "*No, because I am not an organized person*".

The participants that marked the activity as complete did so when they had completed the activity, regardless of how well they performed it (58%), or when they had performed the activity and thought that they mastered it well enough (37%). 3% marked the activities as complete when they had the feeling from the description of the activity that they mastered it and needn't perform the activity.

The reason why they used this functionality varies strongly. 37% used it to see how many activities they already mastered through the "show history" button, 27% to see how many activities they still had to perform through the "show plan" button, 27% to see how far they progressed by comparing the number of activities performed to the number of activities they still had to perform. 8% didn't give their opinion.

81% rated the possibility to mark the activity as complete either as useful (64%) or very useful (17%). 14% took a neutral position and only 5% found it useless (4%) or very useless (1%).

This positive appreciation is also reflected in the qualitative data:

*"Some of them found the "mark as complete" option useful. They liked it. "I have the activity I have done listed it in the history..." Other people had more difficulties to make use of it [Focus-experts]."*

### LearnWeb

A group of 12 participants used LearnWeb and the majority of them did not use the PDP [post-test]. There are different reasons why LearnWeb was only used by a restricted number of participants and for a limited period:



- the tool was ready when the pilot was already in the second month, so its use could not be broadly promoted to all participants;
- the tool is too complicated for most of Agora participants who were focusing on their competence development with the PDP and some of the Liferay functionalities. The group who used LearnWeb corresponds to the most advanced learners with regards to the use of the computer and ICT.

Although a small group of participants used the tools, there were very active as 353 visits were made to LearnWeb during the pilot period [visits]. 67% of the users consider LearnWeb whether as very useful (14%) or useful (53%) in order to search new resources. 13% take a neutral position and 20% consider the tool as useless (13%) or very useless (7%). The participants are even more positive with regards to the possibility to share resources with their classmates/workmate as 87% find it whether useful (60%) or very useful (27%) and with only 1 participant being negative and one showing a neutral position. The participants are also positive, to a less extent, in their appreciation of LearnWeb in rating and evaluating resources. 67% found it whether useful (40%) or very useful (27%), 27% take a neutral position and only 7% found it useless. 40% of the participants used LearnWeb in order to find other resources that would be useful for them, 33% to find additional resources for working on their competences, 20% for another reason they didn't specify and 7% to find resources that could be useful for someone else. All participants that answered to the question of what could be done to improve LearnWeb, replied that they need more practice to give their opinion [post-test]; "*We need to practice more* [focus-participants]." The record of the number of visits to LearnWeb after the end of the pilot confirm the intention of the participants to use the tool as there were 47 visits to LearnWeb between June 12th and July 20th [visits].

All in all, the quantitative results indicate that although LearnWeb was not largely used in the pilot due to time limitation and the context of the pilot (people need more time to get familiar with all the tools), it has potential.

### Forum

A large majority of 75% participants did not use the forum [post-test]. As it is the case for LearnWeb, this functionality was not used due to a lack of time and because the participants were focusing on other elements of the tools. In addition, as the self-training sessions took place in the computer room, the communication between the participants and experts was more face-to-face and thus they did not feel the need to use the forum in this context. Despite the little use of the forum during the pilot, the people who used it were very active as 335 [visits] were recorded.

The large majority of the participants (37%) think that the forum will be useful in the future, 18% (of the total participants) when they work from home and need some advice/help, 13% think it will be useful when they work from home and they want to be updated about the latest news regarding the tools and activities, 7% think it will be useful in the future in order to share ideas and exchange impressions with colleagues/friends, 3% to seek help on the PDP. 7% didn't answer. 76% of the participants either think the forum is useful (63%) or very useful (13%). These results include the participants who did not use it. 16% are neutral and 9% think it is useless. It is clear that the participants like the forum. If we remove the opinions of those participants who have not used the forum, we only have 9 ratings: three say very useful, five say useful, and two have a neutral rating.

All participants that answered to the question of what could be done to improve the Forum, the majority explain that they did not use it enough to be able to express their opinion. The

qualitative data support the idea that the tool has potential and could help the participants when they work on their competence development from home:

*“The forum was too much information for them, but it has potential [Focus-experts]; “They saw the interest of using the forum from home [Focus-experts].”*

The record of the number of visits to the forum after the end of the pilot indicates that the participants continue using this functionality as there were 34 visits to the forum between June 12th and July 20th [visits].

#### Other tools

The participants made use of the other tools available in the system (mainly dictionaries and user-guides) as throughout the pilot period there were 545 visits to the dictionaries and 233 to the user-guides [visits]. In addition, a large majority of 88% answered that these other tools were either were useful (47%) or very useful (41%). 6% took a neutral position, 2% thought they were useless and 1% very useless. The qualitative data stress that the other tools available in the system help them in their learning process, as for example the dictionaries and user-guides (preferred in printed version)

*“Some of the Spanish learners use the dictionary on their own initiative [Observer4-session4]”; “They (English learners) use the dictionary when they have a doubt [Observer1-session7]”; “Some participants have printed out the user-guides and they find it easier and more practical than using them from Liferay [Observer1-session8]”; “The participants asked and paid for the printed versions of the user-guides [Focus-experts].”*

#### Other technical issues

The technical issues mentioned below are neither system errors nor any technical failure of the TENCompetence tooling but are more related to the structure of the tools. All in all, apart from the technical issues mentioned previously, the learning process of the participants was hindered by the complexity to manage the tools. Note that the participants with lower computer skills were the one with most problems to use the tools as other learners who were more computer-literate understood their functioning more quickly, and thus worked with more autonomy. However, at the end of the pilot, most participants used the tools autonomously.

The qualitative data indicate that the participants had troubles to identify and access the different functionalities of the tools. The difficulties observed lay in the numerous steps one had to take before being able to perform the activities. These steps mainly consist in log-in/log-out several times, the existence of many tabs and windows, the non-logical location of some functionalities etc. In addition, the little computing experience of the participants didn't facilitate their learning progress.

The complexity of the structure/configuration of the tools was observed throughout the pilot and consequently it has an effect on the participant's control of their own learning and autonomy. They tend to ask the experts how to use the tool and access to the different functionalities:

*“The structure of the tools is too complicated for those who are not familiar with the computer [Focus-experts]”; “Some participants who want to practice at home during the summer holidays, came to the school to explain they got stuck somewhere in the process and didn't manage to access to their competence plans [Observations-post]”; “I usually remind the participants of the steps to follow. Only few of them to it by themselves [Observer4-session5]”; “As they don't assist to the self-training sessions every week, some of them forget totally the step to follow [Observer1-7session5]”; “One participant noted down the web-page link of an English activity to practice at home directly on that page without using the PDP. She says it is too complicated even if she is quite familiar with computer [Observer1-7session8]”; “They ask to the expert how to get to the activities. Once they accessed the activity tab, they are more autonomous [Observer1-session7]”; “They got lost with the structure of the system. Especially with activities you had to perform separately, many tabs, log-out... They lose motivation. Some people have*



*stopped to come* [Focus-experts].

Furthermore, the need to log-in several times (Liferay, PDP and Linktool) to be able to perform the activities made the whole process drawn-out.

*“It was difficult to log-in so many times. Only 3 participants did it in an autonomous way at the end [Focus-experts]”; “Before I managed to log-in, etc, 30 minutes have past [Focus-participants]”; “They ask why they have to log-in so many times [Observer5-session3]”; “They don’t understand why they have to put their password twice, in PDP and Liferay [Observer2-session3/7]”; “It should be easier to use. The last day we still had difficulties to sign in and use the tool [Post-test]”; “They get confused as they need to log-in again when they want to perform guided activities [Observer3-session5]”; “They forget that they need to log-out from the guided activities and then when they want to perform another guided activity the previous one appear again [Observer1-session5].”*

In addition, the numerous tabs in Liferay and PDP made it difficult for the participants to find the activities:

*“They ask about the different tabs, they don’t know how to find the activities [Observer-all]”; “They found it difficult to find the activities and also to go back to the PDP once they finished an activity [Observer6-session6].”*

Moreover, they tended to mix up the different tabs and had troubles to identify the tools and options. It was observed that they had difficulties to differentiate:

- PDP from Liferay tabs  
*“The participants mix up the PDP and Liferay tabs [Observer1-session3]”; “There is a lot of confusion between PDP and Liferay. There is also some confusion between Liferay, PDP, simple activities, guided activities and self-assessment activities [Observer3-session3/4]”; “It is difficult for them to switch from one tab of the PDP/ dictionary in Liferay/self assessment [Observer1-session7].”*
- “Plan activities” tab from “perform” tab.  
Many of the participants get confused on whether to perform the activities in the “plan activities” tab or in the “perform” tab.  
*“They still get confused regarding the use of “plan activities” tab and “perform tab”. This confusion prevent them from continuing working and they can’t think straight [Observer3-session10]”; “Two participants try to do the activities in the “plan activities” tab [Observer1-session7].”*
- Activities in the PDP and Liferay “Self-assessment activities”  
*“Confusion between the activities and the self-assessment tests. There is a participant who continually performs the tests instead of doing the activities in the PDP [Observer3-session5].”*
- “Self-assessment” tab of the PDP and “Self-assessment activities” (test) tab in Liferay

Moreover, it was observed that the participants found it difficult to go back to the PDP tool once they had finished an activity, as no instruction is given on how to do so (See also *Other learning resources, i.e. language resources*)

*“Once they leave the PDP to perform an activity, they forget to get back to it to follow the next steps” [Observer3-session10]”; “It is difficult for them get back when the activity has finished. They tend to close all the windows by mistake [Observer4-session3].”*

Finally, different suggestions were made in order to make the viewing of the PDP functionalities more simple and thus the general use of the tool easier.

On one hand, it was suggested to improve the structure of the system by eliminating/making invisible the “select objective”, “self-assessment” and “plan activities” tabs once they had been completed, and thus having directly the “perform” window appearing on the screen.

*“I think there are too many tabs in the PDP. It would facilitate the process if once the users have completed the “select objective” and “self-assessment” they would automatically*

*disappear as some participants get stuck with so many options and don't know how to find the activity [Observer2-session3]".*

On the other hand, it was even more complicated for the immigrant participants working on the Basic Spanish competence profile to use all the functionalities of the tools due to language problems. Therefore, it was suggested to include more visual elements to help the participants identify and use the different functionalities of the tools, i.e. signs, symbols, colours, images, numeration, etc.

*"It would have been of great support for the Spanish learners some visual help, such as images or symbols, to help them understand all the functionalities and the activity titles, as they are all novice or beginners in Spanish language [Observer4-session4]"; "The Spanish learners could have taken more advantages of the PDP functionalities if the tool had more visual help to guide the participant through the whole process. Due to the lack of visual support, as for example symbols, colours, numeration of the step to follow, they did not use the "select objective", nor the "self-assessment" tabs [focus-experts]".*

## A.2.5 Discussion

In the second version of Àgora pilot, the participants were mainly women, born in Spain (17% born out of Spain) and had an average of 57 years old. Their profiles varied with regards to their educational levels, professions, and experience in using the computer to learn/communicate. Almost half of the participants consider themselves as beginners with regards to their proficiency level in the competence chosen. Their experience with competence based learning and use of a virtual campus is low. Google is the most used Internet functionality and more than a quarter of the participant has ever used a chat and the Web2.0. tools for sharing purposes. The large majority of participants used the webPDP (integrated in Liferay tool) to develop competences by performing activities related to English (Basic and Advanced), ICT and Basic Spanish competence profiles. A minority used the Forum and LearnWeb as these tools were only available in the second month of the pilot and because the participants were focusing on the PDP activities. The participants worked on their learning activities around 7 hours in the computer room and 11 hours at home. Although they differed in the reasons to register to the pilot, most of them were intrinsically motivated or had a reason related to acquiring better skills with the competence at hand. More than a third of the learners also participated in the first pilot.

The majority of the participants answered the post test. The reasons for not completing it, were diverse (use tools from home, health problems, drop out). On one hand, most of the participants have learned "not little, not much" or "much" with regards to the different competence types (functional, social and knowledge). On the other hand, most of them have discovered what things they can learn/improve in the future (reflective skills). The data collected indicate it was a positive experience as a majority of learners enjoyed this way of learning (very much), want to continue to develop this competence(s) in the future and found that the learning resources (ICT and other learning resources) were interesting and useful. Most of them indicated that they experienced (very) much benefit. Their appreciation of the pilot is supported by the use of the TENCompetence tools outside the Àgora pilot setting, i.e. during holidays, week-ends and after the end of the pilot.

Most of the technical issues reported in the 1<sup>st</sup> pilot were solved. It is easier for the participants to identify and select the activities that best suits them as they are listed in logical order, by competences and have a level assigned. New technical problems appeared but more related to the viewing of the tools and to the general structure of the PDP (too many tabs, log-in/out, etc).

Most participants used the different functionalities of the webPDP, i.e. "self-assessment", "generate plan", and "mark as complete" and found them useful. A minority used the "self-assessment activities (test) of the Liferay as most of them already knew their proficiency level but also because it was difficult for them to access this functionality (located outside the PDP

self-assessment tab). The overall rating of this functionality was very positive. They did not use the Forum much, which is mainly due to the fact they were focusing on their competence development and working face-to-face in the computer room. However the majority of them think it will be useful in the future when they work from home. This tendency is supported by the fact that the participants continue using these functionalities after the end of the pilot. All in all, people explained how they benefit from the different elements of the tools, i.e. being able to choose the activities according to their own level of proficiency, being able to work at their own rhythm, being able to have a control on which activities they have done and the one remaining to perform, etc.

Moreover, the second version of the pilot was an even bigger challenge and its social value was enhanced due to the participation of a group of immigrant learners (all beginners in Spanish). Although they did not use all the PDP functionalities, they explained how much they had learned not only with regard to the Spanish language but also on how to use a computer. All in all, this experience have shown to be beneficial to a wide range of socially excluded groups, i.e. elderly, low educational profiles, women and immigrants.

Finally, the quantitative results and the qualitative data provide better results compared to the 1st pilot experience. Most of the technical issues reported at the end of the 1st pilot were solved and the recommendations made were taken into account in order to improve the tools and the learning resources. Though, the complexity of the tool (numerous tabs, windows, log-in / log-out, general configuration/visualization), put these good results into perspective as, in general, it took some time for the participants to get familiar with the tools and to be autonomous in their learning process.

### **A.2.6 Comparison with cycle2 Agora pilot**

In both pilots, 83 participants used the PDP tool. In the 2<sup>nd</sup> pilot, the tool switched from being a rich client to a Web client. The PDP functionalities were improved according to the recommendations of the 1<sup>st</sup> pilot. In addition, new tools were implemented such as Liferay, the Forum and LearnWeb. In both pilots, a majority of participants were women and with a mean age between 56 and 57 years. The number of participants born out of Spain is much higher in the 2<sup>nd</sup> pilot, i.e. 17% versus 3% [pre-test], which is due to the creation of the new competence profile addressed to immigrants (Basic Spanish). In both pilots, the participants have a wide range of educational profiles and professions. Most of them are intrinsically motivated. 38% of the learners also participated in the 1<sup>st</sup> pilot. The number of participants who registered for a reason related to their job increased (from 20% to 28%).

The second pilot ran during 10 actual weeks, which is one month more compared to the 1<sup>st</sup> pilot. Consequently, participants spent more hours on their competence development plans in the computer room (6,7h versus 5,3h) and at home (10,9h). In the 1<sup>st</sup> pilot, participants started using the PDP at home after the end of the pilot.

According to the quantitative results, participants in the 2<sup>nd</sup> pilot seemed to have suffered less from technical problems. The difficulties laid more in using the tools because of their structure (log-in/log-out, many tabs, visualization, etc.) and the little experience of the participants. In addition, most of the technical problems experienced in the 1st pilot have been solved, i.e. “search activity” button failure, activities opened in a very small window within the PDP, Internet down. In both pilots, the participants had problems to distinguish the “plan activities” tab from the “perform” tab. Some new technical issues appeared (Linktool down, Mark as complete, new activities not displayed, etc.).

Furthermore, the participants seemed to have learned more with regards to the difference competence types in the second pilot (except from social skills). The longer duration of the second pilot and the fact the tools were more accessible (Web based) might explain these results. In fact, they spent more time on their competence development plans in the computer room and at home. In both pilots, most of the participants learned “much” about reflective skills as they discovered what things they could learn/improve in the future.

These positive results are also reflected in the way the participants enjoyed more this way of learning in the 2<sup>nd</sup> pilot (75% versus 54%) and are even more willing to continue developing competence in the future (90% versus 83%).

Participants of the two pilots differ largely in how difficult the learning resources were to them. A majority of participants in the 2<sup>nd</sup> pilot found the learning resources (very) easy whereas most of the participants of the 1<sup>st</sup> pilot found them (very) difficult. In the 1<sup>st</sup> pilot, no levels were assigned to the activities and there were not organized in any logical order or structure, which made it difficult for the users to identify and value the activities and might explain why they found the learning resources difficult. All these issues (structure/levels) were improved for the 2<sup>nd</sup> pilot and might explain why the learners found the resources easier as they could better identify and choose the activities that best suited them.

Regarding the appreciation of the learning resources in terms of “being interesting” and “useful” better results appear the 2<sup>nd</sup> pilot. For instance, it was observed: *Compared with the 1<sup>st</sup> pilot, the content of the English competence profiles are much better and more structured* [Observer1-session4]. These results are also in line with the way the learning matched largely or completely the learning needs of the participants of the 2<sup>nd</sup> pilot resources (75% ICT resources and 62% other resources) and in a much lesser scale in the 1<sup>st</sup> pilot (38% all resources). The qualitative results in both pilots indicate that the participants had a preference for the interactive activities and found it more difficult to work on the ICT learning resources as they were not interactive and the users had to practice outside the tool.

The extent to which the participants felt in control of their own learning was also different in the pilots as most participants (62%) in the 2<sup>nd</sup> pilot felt in control of their own learning compared to a lower percentage (38%) in the 1<sup>st</sup> pilot. The improvements made with regards to the possibility to choose between different levels (indicated in the activity title), the organization of the activities by competences and subjects, might explain why the participants felt more in control of their own learning in the 2<sup>nd</sup> pilot. In the 1<sup>st</sup> pilot, all the activities were listed randomly, with no logical order and there were no levels assigned to each of them. It has shown to create confusion/disorientation when the participants had to choose which activity to perform, and thus affected the control on their own learning.

The same divergence in the appreciation of collaboration with other participant existed in both pilots. In general, there was less collaboration between the participants as in the regular training courses in Agora as the pilot was focusing on self-training.

The participants of the 2<sup>nd</sup> pilot found it easier to determine their own proficiency level compared to the 1<sup>st</sup> pilot (53% found it (very) easy in the 2<sup>nd</sup> pilot versus 26%). In the 2<sup>nd</sup> pilot, the participants had more support to determine their competence proficiency, i.e. self-assessment within the PDP with short explanation of each level and the tests (self-assessment activities), which might explain this tendency.

The way in which the participants selected the next activity to be performed in the list of activities is quite similar to the results of the first pilot but in less proportion. The only differences lay in the way that 13% of the participants in the second pilot started first with the activities of one competence and then of a second competence compared to the 6% of the first

pilot and that only 19% of the participants choose the activity randomly in the second pilot versus 34% in the first pilot. The way the activities were clearly organized by competences in the second pilot might explain these tendencies as the participants could recognize/distinguish the different activity more easily. In other words, it was easier for the participants of the second pilot to choose the way they wanted to select the activities as they were well organized, in a logical order and easy to identify (by competence, level, etc.).

The same results appear in both pilots with regards to the appreciation of the “Mark as complete” functionality of the PDP. Indeed, in both pilots a large number of participants made use of it and used this option when they had completed an activity, regardless of how well they performed it and in a less proportion when they thought they mastered it well enough. This functionality was highly appreciated and a large majority found it useful.

### **A.2.7 Data collection instruments**

The evaluation instruments employed in the pilot are the following:

- Pre-test questionnaire
- Post-test questionnaire
- Observation grids

The pre-test questionnaire and the observation grids used are the same as for the 1<sup>st</sup> pilot and can be seen in D.4.4. A.2.4.

The following post-test questionnaire was handed out to the participants at the end of the pilot. It was translated to Spanish and was adapted to the second pilot characteristics (new competence profile, new tools, etc.).

#### *Learner's post-test questionnaire*

Dear participant in the Ágora Pilot,

Thank you for participating in the Ágora Pilot. The Ágora Pilot is a pilot within the TENCompetence project, which aims at establishing an infrastructure for life-long competence development. As the infrastructure is under development, it is very important for us to evaluate how the infrastructure is used in the Ágora Pilot. As part of the evaluation, we have set-up this questionnaire. Your participation in this evaluation would be highly appreciated, as feedback from the pilot participants is our main source for improving the infrastructure. We would therefore like to ask you to fill in this questionnaire.

We like to stress that by returning this questionnaire, you only grant the researchers permission to use your answers for the evaluation of the pilot. The data you provide will be made completely anonymous before data analysis. They will be used by the evaluation researchers only and not be distributed to anyone else. Thank you for your participation!

In the questionnaire, we will start by asking a few questions on your overall appreciation, and after that we will zoom in on the separate elements of the Personal

Development Planner. The questionnaire contains 58 short questions in total; answering the questions will take about 15 minutes.



		<b>Background information</b>
E002	(1)	Date: __ / __ / 2009
E003	(2)	Start date: __ / __ / 2009
E006	(3)	Name: _____ Note: your name is needed only to combine the information you provide before and after the pilot; your answers will be processed anonymously.
E015a	(4)	How many hours did you spend on your personal development plans in the self-training sessions in the computer room? __ hours
E015b	(5)	How many hours did you spend on your personal development plans at home or elsewhere? __ hours
E016	(6)	Was your learning process hindered by technical problems? [1] Not at all / [2] hardly / [3] moderately / [4] largely / [5] completely
		<b>I. Overall appreciation</b> The first part of the questionnaire is aimed at your overall appreciation of your learning experience.
		<b>Competence development</b>
CD01	(7)	For which of the following competence profiles did you perform one or more activities? <input type="checkbox"/> [1] Inglés Nivel Avanzado <input type="checkbox"/> [10] Inglés Nivel básico <input type="checkbox"/> [11] Castellano Nivel Básico <input type="checkbox"/> [3] Gestión de carpetas y ventanas en OFFICE y Ficheros en WORD <input type="checkbox"/> [6] Uso de Internet <input type="checkbox"/> [7] Uso de MS Power Point <input type="checkbox"/> [9] Uso de Email
		How much have you learned with respect to the following types of competences?
E037	(8)	• Knowledge [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E038	(9)	• Functional skills, know how to do things [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E039	(10)	• Social skills [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E041	(11)	• Knowing how to guide my future use by reflection on current practice [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E043	(12)	I enjoyed this way of learning [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E044	(13)	I wish to continue developing this competence / these competencies further

		[1] Certainly / [2] yes / [3] perhaps, perhaps not / [4] no / [5] certainly not
		<b>Impact</b>
IMP01	(14)	When compared to the beginning of the pilot, did you already experience benefits from participating in the pilot? I experienced benefits: [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
IMP02	(15)	I have experienced benefits in the following areas: ..... .....
		<b>Appreciation of learning resources TIC</b>
		The learning resources were:
E049a	(16)	- [1] Very difficult / [2] difficult / [3] not difficult nor easy / [4] easy / [5] very easy
E050a	(17)	- [1] Very interesting / [2] interesting / [3] not interesting nor uninteresting / [4] uninteresting / [5] very uninteresting
E051a	(18)	- [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
E052a	(19)	The learning resources matched my learning needs [1] Not at all / [2] hardly / [3] moderately / [4] largely / [5] completely
		<b>Appreciation of learning resources OTHER</b>
		The learning resources were:
E049b	(20)	- [1] Very difficult / [2] difficult / [3] not difficult nor easy / [4] easy / [5] very easy
E050b	(21)	- [1] Very interesting / [2] interesting / [3] not interesting nor uninteresting / [4] uninteresting / [5] very uninteresting
E051b	(22)	- [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
E052b	(23)	The learning resources matched my learning needs [1] Not at all / [2] hardly / [3] moderately / [4] largely / [5] completely
		<b>Appreciation of control over my own learning</b>
E053	(24)	In the beginning, I quickly got an overview of the competences involved and my current proficiency level [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E054	(25)	I had a good overview on what I had done and what I had to do [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E055	(26)	I had insight into how my learning progressed [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E056	(27)	I had the feeling that I learned exactly what I wanted to learn [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5]

		disagree completely
E057	(28)	I had the feeling that I could plan my own learning [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E058	(29)	I felt in control of my own learning [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
		<b>Appreciation of collaboration</b>
E060	(30)	I had lively and stimulating discussions with other participants in the pilot [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E061	(31)	I learned a lot from other participants in the pilots [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
COL01	(32)	Other participants in the pilot were able to answer my questions [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
COL02	(33)	I provided useful help to other participants in the pilot [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
		<b>II. Use of the Agora online environment</b> In the second part of the questionnaire we ask you about your use and appreciation of the several elements of the Agora online environment
		<b>Self-assessment</b>
		The Agora environment offers two possibilities for self-assessment: within the PDP tab, people can estimate their own proficiency level and assign it a level ranging between 0 and 8. The Actividades Auto-Evaluación contain self-assessment tests.
		The first three questions are about estimating one's own proficiency level within the PDP.
SA01	(34)	How much have you used the possibility to estimate your own proficiency level with a level between 0 and 8? I used this functionality for _____ of my competences: [1] None / [2] a minority / [3] half / [4] most / [5] all
SA02	(35)	In general, how easy was it for you to determine your own level with each competence? [1] Very difficult / [2] difficult / [3] not difficult nor easy / [4] easy / [5] very easy
SA03	(36)	What is your overall rating of the functionality to estimate your own proficiency level? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
		The next three questions are about the self-assessment tests within the Actividades Auto-Evaluación
SA04	(37)	How often have you performed self-assessment tests? I performed self-assessment tests for _____ of my competences: [1] None / [2] a minority / [3] half / [4] most / [5] all

SA05	(38)	<p>When did you perform self-assessment tests? Please tick all that apply:</p> <p><input type="checkbox"/> [1] Before starting working on activities of a new competence profile, when I had to select the proficiency level.</p> <p><input type="checkbox"/> [2] When I was half-way working on the activities of one competence profile.</p> <p><input type="checkbox"/> [3] After I had completed all activities of one competence profiles that I wanted to perform.</p> <p><input type="checkbox"/> [4] I didn't perform any self-assessment test</p>
SA06	(39)	<p>What is your overall rating of the self-assessment tests?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless</p>
		<b>Plan activities</b>
PLAC01	(40)	<p>How did you plan your activities? Please tick all that apply.</p> <p><input type="checkbox"/> [1] I let the system generate a plan, based upon my self-assessment</p> <p><input type="checkbox"/> [2] I let the system generate a plan, but I didn't fill in the self-assessment</p>
PLAC02	(41)	<p>How did you select the next activity to perform from the list of activities? Please tick all that apply</p> <p><input type="checkbox"/> [1] I performed the activities in the order in which they were listed</p> <p><input type="checkbox"/> [2] I started with the activities that I thought were easiest and then progressed to the activities I thought were most difficult.</p> <p><input type="checkbox"/> [3] I started with the activities that I thought were most difficult and then progressed to the activities I thought were easiest.</p> <p><input type="checkbox"/> [4] I started with the activities that I liked most, and then progressed to the activities that I liked least.</p> <p><input type="checkbox"/> [5] I started with the activities that I liked least, and then progressed to the activities that I liked most.</p> <p><input type="checkbox"/> [6] I first performed all activities related to one of the required competences, and then all activities of a second required competence and so on.</p> <p><input type="checkbox"/> [7] Arbitrarily, randomly</p>
		<p><b><u>Please answer question 42 – 43 only if you work with competence profiles related to ICT</u></b></p> <p><b>Performing activities – differences between activities</b></p>
		<p>From the Information on activities in the PDP, you can access the learning resources attached to that activity. Some of these resources are special, in that you had to log in using the CopperCore link, and they consisted of a number of guided activities, sometime even a complete course, instead of a single one.</p>
PEA01	(42)	<p>Did you log in to this type of courses?</p> <p><input type="radio"/> [1] Yes</p> <p><input type="radio"/> [2] No -&gt; <b>go to question 44</b></p>
PEA03	(43)	<p>How did you appreciate performing activities in these courses compared to performing single activities directly from the PDP?</p> <p><input type="radio"/> [1] The same – I hardly noticed the difference</p> <p><input type="radio"/> [2] The same – I can work well with both unstructured activities (PDP) and more structured courses</p>

		<ul style="list-style-type: none"> <li>○ [3] I preferred the structured courses</li> <li>○ [4] I didn't like the structured courses, because they added another layer, they were activities within activities</li> <li>○ [5] I preferred the activities that I accessed directly from the PDP, because I do not need or like structured courses</li> <li>○ [6] I don't know</li> <li>○ [7] Other reason, namely.....</li> </ul>
		<b>Learnweb</b>
LW01	(44)	What is your rating of LearnWeb in order to search new resources? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
LW02	(45)	What is your rating of LearnWeb in order to share resources with your classmate/workmate? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
LW03	(46)	What is your rating of LearnWeb in order to rate and evaluate resources? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
LW04	(47)	For what purpose did you use LearnWeb? Please tick all that apply: <input type="checkbox"/> [1] To find additional resources for working on my competences <input type="checkbox"/> [2] To find other resources that would be useful for me <input type="checkbox"/> [3] To find resources that would be useful to someone else. <input type="checkbox"/> [4] Other purpose, namely _____
LW05	(48)	What would you suggest to improve Learnweb? _____ _____
		<b>Marking activities as completed</b> The PDP allows learners to mark activities completed. Activities that are marked as completed are removed from the list of activities that you still need to complete and added to the history
E095	(49)	Did you make use of the possibility to mark activities as complete? If not, why not? <ul style="list-style-type: none"> <li>○ [1] Yes</li> <li>○ [5] No, because I didn't notice that the possibility was available</li> <li>○ [2] No: I noticed that this possibility was there, but I didn't know how to use it</li> <li>○ [3] No, because I didn't consider marking activities as complete as helpful</li> <li>○ [4] No, for another reason</li> </ul>
E096	(50)	When did you mark activities as complete? Please tick all that apply: <input type="checkbox"/> [1] When I had performed the activity, regardless of how well I performed it <input type="checkbox"/> [2] When I had performed the activity and thought that I mastered it well enough <input type="checkbox"/> [3] When I had the feeling from the description of the activity that I mastered it, and needn't perform the activity

E097	(51)	<p>How did you use the complete marks? Please tick all that apply:</p> <p><input type="checkbox"/> [1] To see how many activities I already mastered through the ‘Show history’ button</p> <p><input type="checkbox"/> [2] To see how many activities I still had to perform through the ‘Show plan’ button</p> <p><input type="checkbox"/> [3] To see how far I had progressed by comparing the number of activities performed to the number of activities I still had to perform</p>
E099	(52)	<p>How would you rate the possibility to mark activities as completed?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless</p>
		<b>Forum</b>
E065	(53)	<p>For which purposes did you use the Forum?</p> <p><input type="checkbox"/> [1] I didn’t use the forum</p> <p><input type="checkbox"/> [2] I used it to seek help on the PDP</p> <p><input type="checkbox"/> [3] I used it to be informed about the new activities</p> <p><input type="checkbox"/> [4] I think it will be useful in the future when I work from home and I need some advice/help</p> <p><input type="checkbox"/> [5] I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities</p> <p><input type="checkbox"/> [6] Others, namely _____</p>
FOR01	(54)	<p>What is your overall rating of the forum?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless</p>
FOR02	(55)	<p>How to you value the forum as a tool to share ideas and exchange impressions?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless.</p>
FOR03	(56)	<p>Do you have any suggestions to improve the forum?</p> <p>_____</p> <p>_____</p> <p>_____</p>
		<b>Other tools</b>
E066	(57)	<p>How do you value having additional resources in the system (dictionary, quick-guides, etc.)?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless</p>
		<b>Suggestions of improvement</b>
E067	(58)	<p>Please add any suggestion of improvement of the tools or any information you would like to communicate with regards to your experience in this pilot.</p> <p>_____</p>



## Appendix 3: UNESCO-IHE DSS pilot

### A.3.1 Description of the pilot

**Table A.3.1 Description of UNESCO-IHE DSS pilot**

Water Management: Decision Support Systems in River Basin Management	
<p>Short description:</p> <p>In this pilot participants will develop competences related to the process of designing and developing decision support systems (DSSs) for RBM. This requires competences that can roughly be classified in two categories.</p> <p>The first category of competences is in proper formulation of decision making problems as well as understanding of the appropriate usage of various tools and techniques such as simulation, optimisation and multi-criteria analyses.</p> <p>The second category of competencies are required for the actual DSS development, which is usually a computer-based system that integrates data, models and decision support techniques into a decision support environment.</p> <p>This pilot is primarily focused on developing competences that belong to the first category. Following this pilot will help participants answering questions such as: What are the challenges of integrated RBM? Which guiding principles (sustainability, equity) form the basis for successful RBM? How can different management options be linked to the multiple river basin functions? How can we utilise systems analysis approaches to formulate structured decision making problem descriptions using alternatives and objectives? What is the role and applicability of various tools and techniques for solving such decision making problems (simulation, optimisation, multi-criteria analyses)? The pilot will also give an overview of a generic structure of computer-based decision support systems in river basin management.</p>	
Name and description of the Associate Partner	<ol style="list-style-type: none"> <li>1. UNESCO-IHE Institute for Water Education, The Netherlands Development and delivery of the learning content for the pilot; development of competence profiles and individual competences</li> <li>2. Sofia University, "St. Kliment Ohridski", Bulgaria Web deployment of TENCompetence tooling infrastructure; Technical support with using the toolset</li> <li>3. UvA, OUNL and UPF: Pilot evaluators Evaluation of the pilot</li> </ol>
User groups	<p>The pilot is designed for young and mid-level professionals who are involved in decision making processes in river basins at different levels, or those who are developing modelling and information systems support for managing water resources in river basins.</p> <p>Following the TENCompetence definition of target groups this pilot targets two classes of user groups: 1) <i>Individuals</i> who want to gain performance on complex skills for developing and applying decision support tools and techniques in RBM and advance in their professional careers; 2) <i>Groups</i> (or teams) who want to share knowledge, skills and points of view to develop their insights and competences in the field of DSS for RBM. In particular, the second class of user groups aims at <i>practitioners</i> who through this pilot can be supported to develop a community of practice in DSS for RBM. In relation to this objective the</p>

	<p>pilot specifically targets participants from the Nile River basin region, where the need for DSS development is currently clearly identified. Therefore the pilot reserves a number of places for participants from this region (50). In addition to these, the remaining participants will be individuals from all over the world, but mainly from developing countries.</p>
Setting	<p>The pilot will be run technically from the TENCompetence server installed in Sofia, Bulgaria, with content support from UNESCO-IHE in Delft, The Netherlands. The tutors will be located in Delft and the participants will be different geographical locations (Africa, South America, Asia, some from Europe) with very diverse cultural backgrounds. Most of the participants will follow the course from their work place or from home. Although the actual learning is primarily an individual process, peer learning will be stimulated.</p> <p>The competence profile will have a pre-determined learning path. The pilot offers one Competence Profile: Practitioner in DSS for RBM. The pilot duration is 8 weeks (starting on 11 may, 2009), and this period includes all learning activities including assessments. Assessment of the competences will be done via assignments at the end of each competence block. Learning activities are developed in a variety of forms: reading documents, audio-visual presentations, exercises with modelling software, etc. After completion of the pilot and finalisation of the assessment the participants will receive a 'certificate of successful completion' of the learning action on Decision Support Systems Modelling in River Basin Management conducted by UNESCO-IHE.</p>
Roles	<p>The different possible roles involved in the pilot from its design until its completion and the estimated number of persons that will play these roles are:</p> <ul style="list-style-type: none"> <li>*Installation of TENCompetence software and technical support in Sofia: Sofia University - 1 person</li> <li>*Developer of GUI container linking to TENCompetence tools: Sofia University - 2 persons</li> <li>* Competence provider + Content developer + Content Provider + Tutor / advisor : UNESCO-IHE - 6 persons</li> <li>* Advisor+ technical support: UNESCO-IHE - 2 persons</li> <li>* Learner - Registered young to Mid career Water Professionals from all over the world</li> <li>* Preparation and implementation Web Survey evaluation: UNESCO-IHE - 1 person</li> <li>* Pilot evaluator - UVA, OUNL and UPF members</li> </ul>
Tooling	<p>This pilot will use the following TENCompetence tools: PCM database, Web-PDP, LifeRay portal and LearnWeb. In addition to these it will use content web resources deployed on a UNESCO-IHE web server.</p> <p>The following support will be provided through combinations of these different tools:</p> <ol style="list-style-type: none"> <li>1. Support new pedagogical &amp; organisational models for Lifelong Competence Development</li> </ol> <p>This support will primarily be offered by the PCM database, which will be used for structuring and organising the competencies within the competence profile</p>

	<p>2. Support individuals to search the most suitable formal and informal learning activities This will be provided primarily through the WebPDP, although the LifeRay Portal and the LearnWeb tools can offer support to individuals, by enabling peer learning.</p> <p>3. Stimulate pro-active sharing of resources LearnWeb will be the primary support tool for these activities</p> <p>4. Support competence assessment No specific tools will be used for this support</p> <p>5. Provide various forms of user support services LifeRay portal will serve as a primary integrator of various user support services</p> <p>6. Provide decentralized, self-organised management Optional LifeRay tools for self and community management</p> <p>7. Integrate isolated models &amp; tools from four different areas No specific tools will be used for this support</p>
Aim and expectation of the demonstrator	<p>The goals of the DSS in RBM pilot are:</p> <ul style="list-style-type: none"> <li>a) to run a pilot with a completely new content with the learning environment developed by TENCompetence;</li> <li>b) to stimulate sharing of expertise, cases, knowledge resources, etc. in order</li> <li>c) to support a Community of Practice on Decision Support Systems in River Basin Management;</li> <li>d) to have the UNESCO-IHE staff experience and test new learning supporting tools, in the context of a life long learning approach.</li> </ul> <p>The types of learning that will be supported in this pilot are: Instructed education and training and Community of Practice (voluntary knowledge exchange)</p> <p>The expectations are:</p> <ul style="list-style-type: none"> <li>a) effective individual learning (to be demonstrated through the assessments)</li> <li>b) significant group-based social learning that can lead to emergence of a Community of practitioners in the field of DSS in RBM</li> <li>c) evaluation of the competence-based approach to learning when it comes to the topic of DSS in RBM</li> <li>d) evaluation of the individual TENCompetence tools and their operation in integrated fashion</li> </ul>
Context	<p>This pilot will enable UNESCO-IHE to move forward in its ambition to provide water education to a wider community through e-learning. The DSS in RBM pilot has not been offered before at UNESCO-IHE. This offering, within the TENCompetence project, will demonstrate the potential of delivering competence-based courses when they are developed as such from the very beginning. This will be a new experience for UNESCO-IHE, which will contribute to the TENCompetence objectives.</p> <p>The field of DSS in RBM is quite very complex. The pilot will present the need and applicability of DSS techniques and tools within the broad</p>

	<p>context of RBM. This context, from the sustainable development perspective, combines the more traditional objectives such as, agriculture, industry, water supply, navigation, etc., with the whole spectrum of issues related to the aquatic and natural water-dependent environment. DSSs development and use for this setting is a challenging task and needs to be introduced to the learners in a structured manner that enables understanding of many intertwined concepts. Although the methods used for DSS are quite generic, their adaptation to particular RBM problems needs RBM domain knowledge and understanding. The main focus of the pilot is in obtaining competencies of choosing the most appropriate DSS method for a given set of RBM problems. In order to achieve this, the pilot will cover the topics of:</p> <ul style="list-style-type: none"> <li>• General introduction to decision making and the role of decision support</li> <li>• Decision support approaches and methods (optimisation, multi-criteria methods) and their applicability to different WRM problems</li> <li>• Existing tools for decision support (including detailed introduction to some tools and hands on exercises with these tools)</li> <li>• Technologies for DSS development (light introduction)</li> <li>• Critical issues in development and use of DSSs for multi-stakeholder participation</li> </ul> <p>The contents of the pilot will be quite generic, introducing concepts that are widely applicable in many different countries, regions and decision making context. However, as mentioned earlier, there will be a special focus to the Nile basin countries, which will be reflected partly in the contents, and also in the choice / selection of participants. This special focus comes from several reasons:</p> <p>* UNESCO-IHE is involved in a knowledge network of water professionals in this region (NBCBN-RE). There are good contacts to support participation in the DSS course;</p> <p>* A group of Nile basin participants from the Nile basin region have recently passed their MSc at UNESCO-IHE and the pilot would like to invite them as expert reference group. The TENCompetence infrastructure may facilitate and support their knowledge and expertise sharing with DSS-course participants from the region.</p> <p>* The Nile Basin Initiative is funding a large project to build a decision support system for the Nile, as well as to improve capacity in water decision support systems. The TENCompetence Infrastructure may be a useful platform to support (later on) the capacity building program.</p>
Business model / case shown in the demonstrator	<p>The future business models of UNESCO-IHE for which this pilot may prove valuable are:</p> <ol style="list-style-type: none"> <li>1. Offering of distance learning modules which are part of larger (Masters) programmes (reduced costs for potential students - leading to acquiring a degree at their own pace of learning)</li> </ol>

	<p>2. Offering distance learning as short learning actions within life-long learning (reduced costs for potential learners - primarily targeting alumni of the Institute)</p> <p>(It can be seen from the above two that primarily we would aim for benefits to individual learners)</p> <p>3. Offering platforms for development and support of communities of practice in various water-related fields. We already have experiences with other platforms for this purpose; The pilot should demonstrate if the TENCompetence toolset brings additional added values</p>
Business / valorization opportunities	See above
Relevance of TENCompetence for the demonstrator context	<p>The relevance of TENCompetence for this pilot is twofold:</p> <p>Firstly, the competence-based approach to individual and group learning is something that UNESCO-IHE is aiming to explore in its future online learning offerings. The TENCompetence framework and setup offers a unique opportunity for testing this approach and together with the other UNESCO-IHE pilots from TENCompetence it will allow for investigating the applicability of competence-based course development and delivery.</p> <p>Secondly, the TENCompetence project developed a variety of learning tools, which can be tested in this pilot in an integrated fashion.</p> <p>This second aspect, however is also potentially the most significant challenge for the implementation of this Cycle 3 pilot. The actual integration of the different tools in to a seamlessly integrated toolset is not yet clear. This is a challenge that needs to be overcome before starting the pilot. Otherwise, poorly integrated tools may by themselves be detrimental to the learning experience of the learners, which may significantly impair the achievement of the pilot's objectives.</p>
Competence profiles and competences involved	<p>The competence profile, the sub-competence profiles and the competences which will be used in the DSS in RBM pilot are defined as follows:</p> <ol style="list-style-type: none"> <li><b>1. Understanding the Competence concept</b></li> <li><b>2. Understanding the context of River Basin Management</b> <ul style="list-style-type: none"> <li>○ Knowing the concept of River Basin Management</li> <li>○ Knowing the roles of the natural, socioeconomic and administrative systems in RBM and their relations</li> <li>○ Knowing the challenges in RBM: integration across functions, upstream-downstream integration, trade-offs</li> <li>○ Being able to identify the RBM problems that require decision support</li> </ul> </li> <li><b>3. Ability to formulate RBM problems into structured decision support problems</b> <ul style="list-style-type: none"> <li>○ Being able to identify objectives and alternatives</li> <li>○ Being able to prepare hierarchical structuring of objectives</li> <li>○ Being able to define alternatives in terms of decision variables</li> <li>○ Being able to identify the required methods for decision support (simulation, optimisation, multi-criteria analysis)</li> <li>○ Being able to define objectives and alternatives for own</li> </ul> </li> </ol>

	<p>case study</p> <p><b>4. Ability to apply modelling simulations as decision support tools in RBM</b></p> <ul style="list-style-type: none"> <li>o Knowing the modelling paradigms used in RBM problems</li> <li>o Knowing the concepts of river basin modelling</li> <li>o Being able to develop and apply river basin modelling for simple RBM problem using river basin modelling software</li> </ul> <p><b>5. Ability to apply optimisation techniques as decision support tools in RBM</b></p> <ul style="list-style-type: none"> <li>o Knowing the basic concepts of optimisation</li> <li>o Knowing the applicability of several optimisation techniques (classical, calculus-based optimisation, linear programming, dynamic programming)</li> <li>o Being able to apply different optimisation techniques to typical water resources management problems, using optimisation software</li> </ul> <p><b>6. Ability to apply multi-criteria analyses (MCA) as decision support tools in RBM</b></p> <ul style="list-style-type: none"> <li>o Knowing the basic concepts of MCA</li> <li>o Being able to formulate MCA problems for solution with Multiple Attribute Decision Methods (MADM)</li> <li>o Being able to solve MCA problems with MADM methods</li> <li>o Being able to use decision support software developed for MCA analyses using MADM</li> </ul> <p><b>7. Understand the structure and types of DSS in RBM</b></p> <ul style="list-style-type: none"> <li>o Knowing the generic structure of computer-based DSSs</li> <li>o Knowing the different types of DSSs in RBM</li> <li>o Knowing applications of DSSs for planning and design</li> </ul> <ul style="list-style-type: none"> <li>o Knowing applications of DSSs for operational management</li> </ul>
Training needs	<p>The manuals for the TENCompetence tools to be used in this pilot are needed. These include the following:</p> <p>(for the learners and competence providers)</p> <ul style="list-style-type: none"> <li>* Web-PDP</li> <li>* LifeRay</li> <li>* LearnWeb</li> </ul> <p>(for the competence providers )</p> <ul style="list-style-type: none"> <li>* PCM database</li> </ul> <p>(for all staff involved in technical support)</p>
Implementation plan	<p>The implementation plan of the DSS in RBM pilot is carried out as follows:</p> <ul style="list-style-type: none"> <li>* January -third week of April 2009: the announcement of the pilot on the UNESCO-IHE website and call for applications, for water professionals from all over the world</li> <li>* End of April and beginning of May 2009: analysis of applications, admittance and registration</li> <li>* In parallel with the two above mentioned activities the setup of the TENCompetence toolset for the pilot implementation will be carried out, together with the actual implementation/integration of the pilot activities into this toolset. This will be carried out in parallel with the development of the required resources and creation of suggested competence development plans</li> </ul>



	<ul style="list-style-type: none"> <li>* 1st week of May 2009: learner registration and announcement of the registration details (user names and password will be sent out to participants)</li> <li>* 11-12 May 2009 – conducting pre-evaluation questionnaire</li> <li>* 11-12 May 2009 instructions on the use and possible installations of TENCompetence tools are sent by e-mail to all registered participants</li> <li>* 12 May- 3 July 2009 – the DSS in RBM pilot run</li> <li>* 3-6 July 2009 - conducting post evaluation questionnaire</li> <li>* 6-10 July 2009 data collection for evaluation.</li> </ul>
Could you mention one or more results with which you would consider your pilot a success?	For this pilot to be considered a success, we would expect that 50% of all participants mastered all required competences. Another result is the emergence of a community of practice in the field of DSS in RBM, especially in the Nile Basin region. This however is difficult to measure quantitatively.

### A.3.2 Implementation

The implementation of the DSS in RBM pilot was carried out according to the plan as follows:

**January-April 2009:** development of the resources and units of learning, adaptation of the competence profiles and associated competences and competence development plans

**February-April 2009:** call for applications to the course, evaluation of applicants and admission

**April-May:** platform building and participants registration to the course

**11th May –10 July 2009:** pilot run. The pilot started as planned, but was extended by one week (from 3 July to 10 July), on requests of many of the participants

**July-August 2009:** data collection for evaluation

#### Registration of the participants

The registration period took place from February till April 2009. The pilot was advertised in the institute website. Some participants who joined the FMM01 pilot were applying and have been accepted to the DSS in RBM pilot.

#### Actual number of participants

- Participants/users: 104 water professionals from all around the world were initially registered, who wanted to develop their skills in the area of Decision Support Systems for River Basin Management. According to the implementation plan 50 places were reserved and eventually filled up with participants from Nile basin countries. However, many participants did not take any actual activity in the pilot, primarily because of problems with Internet connections. Most of these were in fact from African countries. Some of the participants dropped off because the pilot was too intensive to be carried out in parallel with their regular job obligations. Only around 60 participants remained active throughout the pilot, out of which 31 successfully finalized the course and obtained the certificate.

### Training

- Training for participants in using the platform was carried out by sending them User manuals and Step by step guides for using the learning tools. It took them about 2 days to get acquainted with the system and start the actual learning.

Different user guides were created to help the users to get familiar with the TENCompetence tooling. The participants had the possibility to access the following guides on the DSS in RBM pilot via the Liferay home page:

- Liferay user guide (Including explanation on how to access to the Web PDP, to use the Self-assessment activities, dictionaries, forum, training guides)
- LearnWeb user guide
- Web PDP user guide

In many cases, the participants preferred to print out the guide instead of just accessing it via the computer screen.

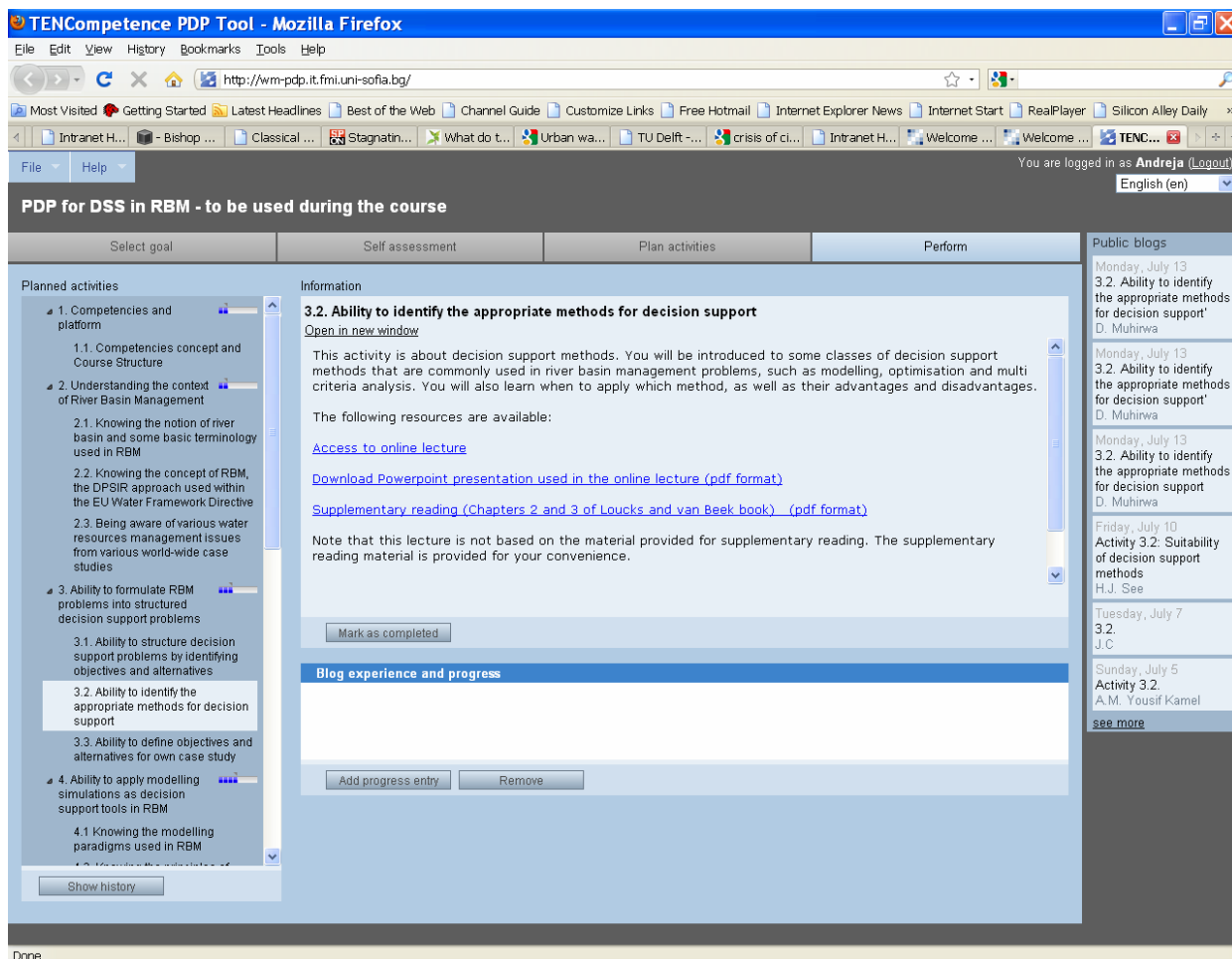
### Workload of learners

On average, the users have worked 2.5-3 hours a day from their home-computers

### Tools used

**PCM (*Personal Competence Management*):** This tool was used by the experts to create the Competence Profiles, Competences, and Activities.

**Web PDP (*Personal Development Plan*):** This tool was used by the content developers to create the description of the activities and to associate the resources for each activity. The participants used the Web PDP as the central tool for planning their learning process and accessing the different activities available in the pilot (See Figure A.3.1).



**Figure 1.3.1. Screenshot of the Web PDP tool**

*Liferay*: This tool was the portal used to integrate the TENCompetence tools. It contained main page for access of all the tools, with embedded portlets for course calendar and Forum (Message boards). From the same page access was provided to WebPDP and the LearnWeb tools (Figure 1.3.2).

The screenshot displays the UNESCO-IHE Decision Support Systems in River Basin Management portal. The top navigation bar includes links for 'Welcome to the DSS in RBM Community', 'Personal Development Planner', 'LearnWeb', 'DSS Course Resources', and 'Participants'. The main content area features an introduction to the learning environment, an important announcement about the course extension, and instructions for using the Personal Development Planner (PDP) and LearnWeb. The sidebar contains a 'DSS Course Calendar' showing the current date as Wednesday, December 16, 2009, and a 'DSS Message Boards' section with categories for course messages and general messages.

Figure 1.3.2. Screenshot of the LifeRay environment

*LearnWeb*: This tool is a container of Web 2.0. tools to manage and share resources (*photographs, videos, etc.*), *make group work, etc.* It was used by a limited number of pilot participants.

### A.3.3 Evaluation methodology

Table A.3.2 indicates the different data sources considered to evaluate the pilot according to the evaluation plan (Hernández-Leo et al., 2009a). Similar data sources were employed in the first and second version of the pilots (Cycle 1 and 2). Quantitative data were collected in two questionnaires: a pre-test answered at the launch of the pilot dealing with the participants' characteristics and expectations of the pilot; a post-test evaluation of the pilot, which was completed by the participants the last week of the experience. The log files generated by the TENCompetence infrastructure and the Google Analytics of the Liferay portal also provide quantitative data for the analysis of the system usage.

**Table A.3.2 Data sources for the evaluation of the DSS pilot and labels used in the text to quote them**

Data source	Type of data	Labels
<i>Pre-test, post-test questionnaires</i>	Quantitative and qualitative participant characteristics, expectations and evaluation.	[pre-test] [post-test]
<i>Log files</i>	TENCompetence server logs of the PDP tool (taking into account only the participants' logs)	[logs]
<i>Visits to the web portal and tools</i>	Google Analytics records about the number of visits to the Liferay site and the integrated tools (including self-assessment tests, LearnWeb) as iframes (records including visits of the participants and the supporting staff)	[visits]
<i>Context of the pilot</i>	Qualitative descriptions of the context characteristics in which the pilot is framed (previous section)	[context]

### A.3.4 Evaluation results

#### *Characteristics of the participants*

The pre-test questionnaire was done around May 11, 2009. 105 persons completed the questionnaire, 24 women (22,9%) and 81 men (77,1%), with an average age of 35,3 years old, and a standard deviation of 8,22. The oldest participant is 67 and the youngest is 23 years old. Of these persons 43 actually participated in the post-test questionnaire as well (41%).

The participants come from a variety of countries, 38 in total, spread over the entire world, although more than half of the persons come from Africa.

From the log files of the TENCompetence core services 106 individual users were identified. The additional user appeared through a participant who had two user names in the system. During the pilot 2781 user sessions were identified.

Country	Number of participants
Ethiopia	11
Egypt	10
Kenya	9
Uganda	7
Rwanda	6
Australia	4
Germany	4
India	4
Pakistan	4
Brasil	3
Canada	3
Greece	3
Sudan	3
United Kingdom	3
Belgium	2
Mexico	2
Netherlands	2
Nigeria	2

Singapore	2
Tanzania	2
USA	2
China	1
Colombia	1
Democratic Republic of Congo	1
Ghana	1
Hong Kong SAR, China	1
Iran	1
Jamaica	1
Jordan	1
Lithuania	1
Macedonia	1
Mozambique	1
Nicaragua	1
Northern Ireland	1
Portugal	1
Spain	1
Trinidad and Tobago	1
Turkey	1

**Table A.3.3 Countries of participants**

*Education, profession, current job function, experience*

Sixteen (15,2%) of the 105 participants hold a Bachelor's degree, 75 (71,4%) a University Master's degree, and fourteen participants (13,3%) hold a PhD.

The answers to the question 'What is your profession' give the following list of 57 professions, of which many civil engineers while water and environment is clearly present.

n=105

<b>Profession</b>	<b>#</b>
Civil Engineer	26
Environmental Engineer	6
Engineer	5
Water Resources Engineer	5
Hydraulic Engineer	3
Hydrologist	3
Civil and environmental engineer	2
Environmental Scientist	2
Geologist	2
Hydrogeologist	2
Researcher	2
Water Engineer	2
Agriculture and water resources	1
Aquaculture engineer	1
Biologist	1
Chemist	1
Civil Engineer and town planner	1
Civil servant	1
Conservation Planning	1
Conservationist, Freshwater Ecologist	1
Consultant	1
Environmental Chemistry	1



Environmental Health Engineer	1
Environmental management specialist	1
Environmental Planner	1
Environmentalist	1
Geographer	1
Geomatics - civil engineering	1
GIS/RS specialist and hydrogeologist	1
Government job	1
Graduate Student, PhD Program in Water Resources	1
HydroMeteorologist	1
Hydraulic/Water resources Engineer	1
Hydrologist, Engineer, Geographer	1
Hydrology and Water Resources Management	1
Hydrology Engineer	1
Information Management	1
International Relations Analyst	1
Irrigation engineer/water resource and environment manager	1
Lecturer	1
Lecturer and Researcher	1
Manager deputy of the administration of contracts unit	1
National Coordinator Assistant in Nile Basin Initiative-Applied Training Project for Rwanda	1
Project engineer water	1
Project Manager. Engineering and Innovation	1
Registered Town/Country	1
Student	1
Teaching assistant	1
University Lecturer	1
Water and environment manager	1
Water and Environmental Engineer	1
Water and Environmental Sanitation Engineer	1
Water and Irrigation Engineer	1
Water manager/soil scientist	1
Water professional	1
Water system analyst	1
Watershed specialist - Water resources engineer	1

**Table A.3.4 Professions of participants**

Asked about the current job function produces an even more diverse picture.

<b>Current job function</b>
Advisor, Integrated Water Resources Management
Agricultural Project Manager
Agriculture Engineer
Assistant at the faculty
Assistant Research Fellow
Carrying out several tasks in the branches of civil and water engineering.
Civil Design Engineer
Conservation Project Development and Execution
Consultant (4 times)
Consumer Affairs officer in charge of Water and Sanitation
Contract Engineer
Coordinator of the UNESCO Antenna Office in Salvador-Bahia, Brazil
Dam Manager

Database administrator
Director (Water Resources & Environment Division)
Director / Principal Groundwater Modelling Engineer
Director, Technical Minister's Office
Division Manager - Water & Sanitation Division
Drainage Engineer
Ecological sanitation manager
Employee water quantity
Environment and land Development
Environmental management of ENSAP projects during preparation and implementation phases
Environmental Specialist
Environmental studies
Environmentalist
Evaluate and participate in evaluation committees and also organizing training programs in procurement affairs for the Ministry of Water Resources and Irrigation staff
Executive manager
Freshwater Coordinator
General Manager for ABCE PLC (private consultancy company)
GIS Analyst
Graduate Civil Engineer
Graduate Research Assistant
Graduate student
Head of Climate Change Dept.
Head of Hydrology Programmes
Head of M&E unit at IIIMP/ Ministry of water resources in Egypt
Hydrogeologist
Hydrologist
Irrigation Project Coordinator
Junior engineer
Lecturer (3 times)
Lecturer and head of WRED
Lecturer and Research Assistant
Lecturer and Researcher in areas of water supply and hydraulics
LECTURER ON GIS AT ITG
Lecturing in the University
Looking for job
Management and policy formulation of transboundary waters resources
Manager At The JomoKenya International Met Office
Modeller
Modelling and hydrological studies
Municipality Consultant
NBI/ATP Assistant Office in Rwanda
PhD candidate (3 times)
Principal Water Analyst in charge of water quality data management
Professor
Program manager for School environment and education program for somalia-USAID funded
Programme Officer
Project engineer
Project Engineer in Water and Wastewater Treatment Plants
Project engineer water
Project Engineer, Ministry of Water and Environment
Project Manager (5 times)

Project Manager's assistant
Project Manager for Green Clean and Solar City, Environmental Impact of River Basin on Settlements.
Project officer
PROJECT OFFICER, UEVRP, UNDP-INDIA
Project planning, implementation and coordination
Regional Technical Advisor for Environmental Health (Africa)
Research and teaching
Research assistant in hydrology and remote sensing application
Research scientist
Scholarship Investigator
Self employed, elaborating environmental impact studies
Student
Support environmental group in various works mainly involving reports for environmental permits
Taking lectures and Labs
Technologist
Training and Research
Water and Sanitation (WASH) Specialist
Water and sanitation program manager, Action Contra la Faim
Water and Sanitation Programme Manager
Water and Sanitation Technician
Water investment and asset planning
Water policy research and advocacy
Water Resources Engineer (2 times)
Water Resources Planner (3 times)
Water resources research integrated with GIS/RS
WATERSHED MANAGEMENT/HYDOLOGICAL STUDIES
Watershed resource mapping and analysis

**Table A.3.5 Current job functions**

Asked about the number of years of experience in the professional field of Decision Support Systems in River Basin Management, 28 persons fill a zero, so 26,7% do not have any experience in the field. Twenty-two (21%) have 2 years or less of experience, 26 (24,8%) have an experience between 2 and 5 years and twenty-nine persons (27,6%) have 5 years or more of experience, of which four persons having an experience of 40, 25, 22 and 21 years. This all brings the average to somewhat more than 4,5 years of experience.

### *Competence development*

The question “How would you describe your current proficiency level with respect to Flood Modelling for Management” is answered by all 105 participants. The scores are:

n=105	#	%
Novice	14	13.3%
Beginner	57	54.3%
Intermediate	27	25.7%
Advanced	7	6.7%
Expert	0	0,0%

**Table A.3.6 Current proficiency level**

For the question “How important is it for you to acquire the following types of competences?” we see that almost everyone thinks that most competences are (very) important to acquire. Only

social skills have a somewhat lower score, followed by competence in the area of professional norms and values.

	--	-	+/-	+	++	n
* Cognitive knowledge (to know what Flood Modelling is about)	0.0% (0)	1.0% (1)	3.8% (4)	40.0% (42)	55.2% (58)	105
* Functional skills (to know how to do Flood Modelling)	0.0% (0)	1.0% (1)	1.9% (2)	35.2% (37)	61.9% (65)	105
* Social skills	0.0% (0)	2.9% (3)	9.6% (10)	51.0% (53)	36.5% (38)	104
* Knowing how to behave according to the rules and values of the profession	0.0% (0)	1.0% (1)	8.7% (9)	35.6% (37)	54.8% (57)	104
* Knowing how to guide my future use by reflection on current practice	0.0% (0)	0.0% (0)	1.0% (1)	35.2% (37)	63.8% (67)	105
* Knowing how to find creative solutions for problems related to this competence	0.0% (0)	0.0% (0)	1.0% (1)	13.3% (14)	85.7% (90)	105

**Table A.3.7 Importance of acquiring competences**

The question “How often have you followed a training or course which was competence-based?” is answered as follows. For most of the participants the approach of competence-based learning is quite new.

**n=105**

Never	37	35.2%
Once	33	31.4%
Two or three times	9	8.6%
Four or more times	10	9.5%
I don't know what competence-based training is	16	15.2%

**Table A.3.8 Frequency of previous competence-based training**

#### *Experience with web-based learning*

The participants could indicate the total number of courses / modules etc. that they have followed through distance learning. One person indicates to have followed 16 courses, and another 21.

**n=104**

Never	58	55,8%
Once	27	26,0%
Two or three times	14	13,5%
Four or more times	5	4,8%

**Table A.3.9 Experience with distance learning**

It was also asked how often they participated in online (webbased) discussion forums.

**n=104**

Never	33	31.7%
Occasionally	33	31.7%
Sometimes	21	20.2%
Often	11	10.6%
Very often	6	5.8%

**Table A.3.10 Frequency of participation in forums**

The same was asked about online chats.

**n=104**

Never	14	13.5%
Occasionally	30	28.8%
Sometimes	24	23.1%
Often	20	19.2%
Very often	16	15.4%

**Table A.3.11 Frequency of participation in chats**

How often have you used / do you use search functions for finding information, such as google or database search?

**n=104**

Never	0	0.0%
Occasionally	2	1.9%
Sometimes	2	1.9%
Often	15	14.4%
Very often	85	81.7%

**Table A.3.12 Frequency of using search functions**

How often have you used / do you use ratings by others for selecting information for your own use?

**n=104**

Never	8	7.7%
Occasionally	16	15.4%
Sometimes	32	30.8%
Often	32	30.8%
Very often	16	15.4%

**Table A.3.13 Frequency of using ratings**

How often have you shared / do you share data and files with other people in online communities *for leisure (free time) purposes?*

**n=104**

Never	16	15.4%
Occasionally	30	28.8%
Sometimes	29	27.9%
Often	16	15.4%
Very often	13	12.5%

**Table A.3.14 Frequency of sharing data for leisure**

How often have you shared / do you share sharing data and files with other people in online communities *for professional purposes?*

**n=104**

Never	12	11.5%
Occasionally	23	22.1%
Sometimes	22	21.2%
Often	34	32.7%
Very often	13	12.5%

**Table A.3.15 Frequency of sharing data for profession**

### *Motivation for following the course*

Upon the question “Which of the following reasons for following Decision Support Systems in River Basin Management pilot apply to your situation?” six possible answers were presented that participants could tick that apply to their situation. In total 347 answers are ticked.

n=104

I want to keep up to date within my existing function or job	63.5%
I want to study for a new function or job or improve my current job level	66.3%
I want to reflect on my current competences to look which functions and jobs are within my reach or to help me define new learning goals	60.6%
I want to improve my proficiency level of a specific competence	72.1%
I want some support on a non-trivial learning problem	22.1%
I want to explore the possibilities in a new field (learning network) to help define new learning goals	49.0%

**Table A.3.16 Reasons for participation in the pilot**

Thirteen participants tick only one answer. Often more answers are ticked; the average is 3,34 of the 6 answers. Eight persons tick all 6 reasons.

### *Involvement of the employer*

It was asked whether and how the employer was involved.

n=104

My employer is not involved in my following this course	67.3%
My employer would have paid the fee for this course	7.7%
My employer has obliged me to follow this course	5.8%
My employer has allocated part of my working hours for following this course	21.2%
Following this course successfully is necessary for me to keep my current job function	25.0%
Following this course successfully is necessary for me to obtain a new job function at my current employer.	30.8%
I follow this course as part of a trajectory for people who are unemployed or who are in danger of becoming unemployed.	5.8%

**Table A.3.17 Involvement of the employer**

Twenty-three persons tick two possibilities, 12 tick 3, 5 tick 4 and 1 person ticks 5 possibilities here.

### *Navigating learning paths*

This is the dimension that ranges from completely self-steering to being guided by the system with little choice.

In the questionnaire first an intro was given: “The course will provide you with a diversity of web-based learning resources. In addition, your learning can be supported in several ways. We can outline a path for you, we can ask you to follow a specific learning path, or we can give you the freedom to follow your own path.” (For DSS in RBM pilot the path was pre-determined, but still the preference of the participants was asked)

After that one of three possibilities could be ticked on the basis of the question: “What would be most supportive for your learning”?



1. Support me with learning resources only
2. Support me with learning resources + an outlined path + the possibility to choose my own learning path
3. Support me with learning resources + a path that I need to follow

Navigation (n=104)	#	%
1. Learning resources only	5	4.8%
2. Learning resources + outline path + choose own path	76	73.1%
3. Learning resources + outline path to be followed	23	22.1%

**Table A.3.18 Preferences for learning support**

The majority wants to have as much possibilities and freedom to choose.

### *Facilities*

Finally we asked about the computer in use for accessing the course and about the Internet-connection.

45% (n=104) say to have a new computer, less than a year old, while 49% say they have a computer neither old or new. Six persons have a computer more than a few years old. Eleven participants have a slow Internet-connection (10,6%), 44,2% say medium, 44,2% have a fast connection, and 1 person has a very fast connection with Internet.

### *Response of the post-test*

The post-test was filled around half of July, 2009. A total of 43 participants, 9 women (20,9%) and 34 men (79,1%), have filled the post-test questionnaire after the UNESCO DSS pilot. This is 41% of the persons who have filled the pre-test. Their average age is 34,9% years old, with a standard deviation of 7.1 years; all participants are between 23 and 52 years old. The median lies at 33 years old.

They come from a variety of countries, 26 in total, spread over the entire world. The share of participants in African countries has been reduced: from more than half it is now somewhat more than one third. The main reason for this is that the number of participants who cancelled their participation at the beginning of the pilot because of bad Internet connection was proportionally largest for those coming from Africa.

Country	Number of participants
Uganda	4
Australia	3
Canada	3
Ethiopia	3
Germany	3
Kenya	3
Belgium	2
Egypt	2
Rwanda	2
United Kingdom	2
Brasil	1
China	1
Colombia	1
Democratic Republic of Congo	1

Greece	1
Hong Kong SAR, China	1
India	1
Iran	1
Lithuania	1
MEXICO	1
Netherlands	1
Nicaragua	1
Northern Ireland	1
Singapore	1
Sudan	1
USA	1

**Table A.3.19 Countries of the participants**

Six (14%) of the 43 participants hold a Bachelor's degree, 26 (60%) a University Master's degree, and 11 participants (25,6%) holds a PhD. Relatively to the pre-test more persons with a higher degree have completed the post-test. In the pre-test we asked about the number of years of experience in the professional field of Decision Support Systems in River Basin Management: 16 persons fill a zero, so 37% does not have any experience in the field. Six persons have 5 to 10 years experience, twelve persons have an experience between 2 and 5 years, eight have less than 2 years of experience. All extremely experienced persons have not filled the post-test except one person with 18 years of experience. This is why the average goes down to 3 years, while it was 4,5 years in the pre-test.

Also from the pre-test are the following answers. The question "How would you describe your current proficiency level with respect to Decision Support Systems in River Basin Management" is answered by all 38 participants minus 1. The scores are:

n=43	#	%
Novice	8	18,6%
Beginner	21	48,8%
Intermediate	12	27,9%
Advanced	2	4,7%
Expert	0	0,0%

**Table A.3.20 Current proficiency level**

The question "How often have you followed a training or course which was competence-based?" is answered as follows.

n=43		
Never	13	30,2%
Once	17	39,5%
Two or three times	2	4,7%
Four or more times	3	7,0%
I don't know what competence-based training is	8	18,6%

**Table A.3.21 Frequency of following competence-based training**

## General

	Response Average	Response Total	Response Count
Total number of hours:	127.33	5,475	43

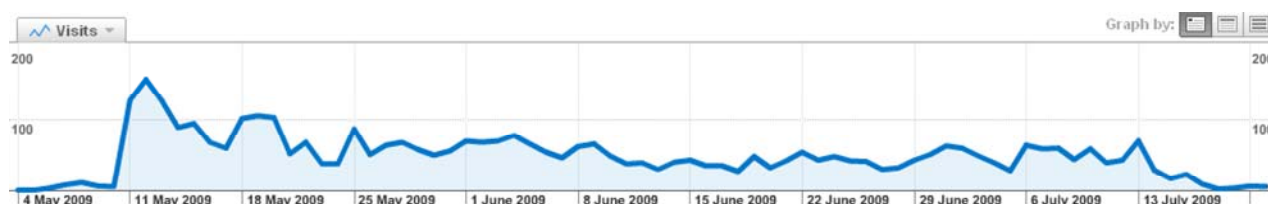
**Table A.3.22 Number of hours spent**

The average number of hours spent on the DSS course is 127 hours, with a standard deviation of 94 hours. There is one person who indicates to have spent 5 hours, and another one who has spent 400 hours. The median lies at 100 hours. The course was initially designed to have a study load of 100 hours, but it was extended by one week, and a more realistic estimate of the study load is about 120 hours. These numbers are similar to the average and the median found from the evaluation, but the high standard deviation is indicative of the diverse competencies in the specified pre-requisites.

**System usage:**

- 3,891 visits (540 in the Netherlands, 262 in Greece, 267 in Sudan, 253 in United Kingdom, 203 in Rwanda, 193 in Germany, 190 in Australia, 189 in Kenya, 132 in United States, and 126 in Uganda),
- 24,909 page views, including main page and access to PDP, LearnWeb, etc.
- 6.40 pages/visit

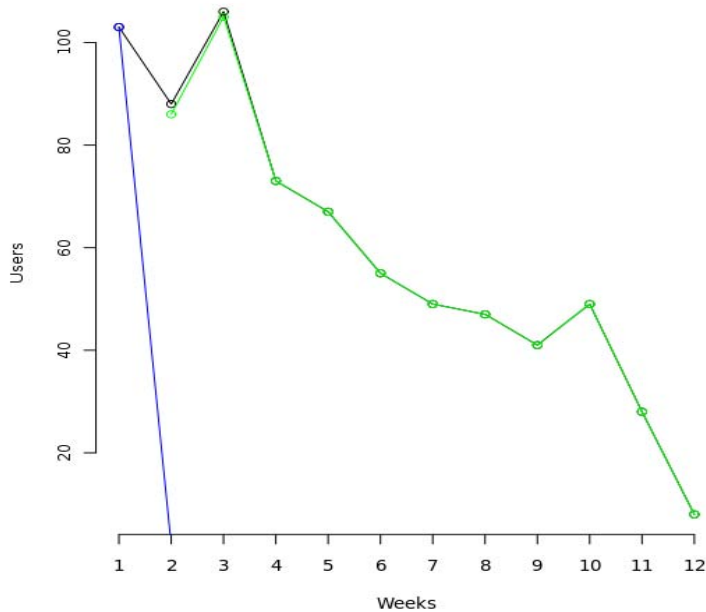
4 May 2009 - 21 Jul 2009



**Figure A.3.2 Usage of the TENCompetence system during the official period of the UNESCO-IHE pilots [visits]**

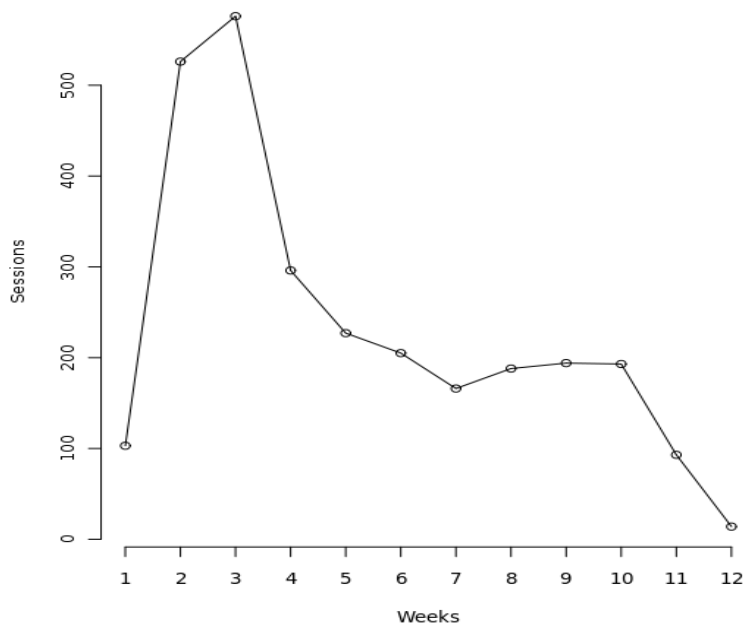
The UNESCO DSS pilot was designed as a non-formal pilot with community of practice elements. All participants registered at the same time and mostly participated in the learning activities in a similar way as for the FMM pilot. For building a community of practice it would have been expected that at later phases of the pilot new users would join the group, but this could not be identified through the usage of the TENCompetence core services. Figure 5 indicates that all participants have registered by the third week of the pilot.

The log files also show that the number of users who accessed the TENCompetence core services declined over the period of the pilot. However, not all participants were using the system in weekly visiting patterns. The introspection shows that some participants used the TENCompetence core services infrequently. Interestingly, over the first three weeks almost all participants were using the TENCompetence core services.



**Figure A.3.3 Weekly numbers of individual users of the TENCompetence core services.**

Although the average session number per user and week was slightly higher in the first three weeks than in the following weeks of the pilot, it shows a less intensive 'familiarising' than in the previous FMM pilot in which some DSS learners also participated. Instead, the average number of weekly sessions in the first three weeks was around 5 sessions per user while in the following weeks it was around 4 sessions per user (Figure A.3.3). Throughout the pilot the weekly sessions were proportional to the active participants. However, only a few participants continued to use the TENCompetence services after the pilot has finished (Figure A.3.4).



**Figure A.3.4 Individual sessions related to the TENCompetence core services**

### Technical problems?

We asked whether the learning process was hindered by technical problems.

	Not at all	Hardly	Moderately	Largely	Completely	Response Count
Level of hindrance	9.3% (4)	9.3% (4)	<b>58.1% (25)</b>	18.6% (8)	4.7% (2)	43

**Table A.3.23 Technical problems**

We see that the average level of hindrance lies around moderately. The two persons with ‘completely’ come from Ethiopia and Iran. The 8 persons with ‘large’ problems come from. The list below shows again that hindrance was experienced mostly in African countries:

- Uganda (2x)
- Kenya (2x)
- Egypt
- Ethiopia
- Rwanda
- Hong Kong SAR, China

One person (with moderate problems) stops with the post-test. From here onwards the maximum response is 42.

### Learning different types of competences

We asked ‘How much have you learned with respect to the following types of competences?’

	--	-	+/-	+	++	#
* Cognitive knowledge (to know what Decision Support for River Basin Management is about)	2.4% (1)	0.0% (0)	4.8% (2)	45.2% (19)	<b>47.6% (20)</b>	42
* Functional skills (to know how to choose between Decision Support Systems in River Basin Management)	0.0% (0)	0.0% (0)	19.0% (8)	<b>50.0% (21)</b>	31.0% (13)	42
* Social skills	4.8% (2)	16.7% (7)	<b>52.4% (22)</b>	19.0% (8)	7.1% (3)	42
* Knowing how to behave according to the rules and values of the profession	2.4% (1)	14.3% (6)	33.3% (14)	<b>42.9% (18)</b>	7.1% (3)	42
* Knowing how to guide my future use of Decision Support Systems in River Basin Management by reflection on current practice	2.4% (1)	2.4% (1)	11.9% (5)	<b>57.1% (24)</b>	26.2% (11)	42
* Knowing how to find creative solutions for problems related to this competence	2.4% (1)	2.4% (1)	19.0% (8)	<b>47.6% (20)</b>	28.6% (12)	42

**Table A.3.24 Competences learned**

Overall the scores are at the (very) positive side. The overall average rating of 3,82 indicates that as well. Only social skills and behaving according to professional rules and values scores less. There are two persons with a overall score for all competences lower than 3. The person with the lowest score has had ‘complete’ technical problems, the other with a somewhat higher overall score had ‘large’ problems. The other person with complete technical problems has an overall score of 3,33, so a bit better than neutral.

### *This way of learning*

Then we asked about whether the participants liked this way of learning

N=42

	<b>I agree completely</b>	<b>I agree</b>	<b>I neither agree nor disagree</b>	<b>I disagree</b>	<b>I disagree completely</b>
I enjoyed this way of learning	33.3% (14)	<b>45.2% (19)</b>	14.3% (6)	7.1% (3)	0.0% (0)

**Table A.3.25 Appreciation for this type of learning**

It is clear that most participants enjoyed this way of learning. It is not clear why three persons did not enjoy this way of learning.

### *Further development of competences*

We asked about the further development of competences.

N=42

	<b>Certainly</b>	<b>Yes</b>	<b>Perhaps, perhaps not</b>	<b>No</b>	<b>Certainly not</b>
I wish to continue developing these competencies further	<b>59.5% (25)</b>	35.7% (15)	4.8% (2)	0.0% (0)	0.0% (0)

**Table A.3.26 Further development of competences**

Here only two of the 42 participants are unsure about continuing their development.

### *Benefits experienced*

Then we asked: ‘When compared to the beginning of the pilot, did you already experience benefits from participating in the pilot?’

N=42

	<b>(Almost) nothing</b>	<b>Little</b>	<b>Not little, not much</b>	<b>Much</b>	<b>Very much</b>
I experienced as benefits	2.4% (1)	4.8% (2)	11.9% (5)	<b>54.8% (23)</b>	26.2% (11)

**Table A.3.27 Benefits experienced**

The one person who says to have experienced almost no benefits adds: “*Use of blog and interactive knowledge sharing*”. One of the two persons with little benefits has had ‘complete’ technical problems. Neither two persons add a comment.

Of the 5 neutral persons three add a comment to the statement “I have experienced benefits in the following areas”:

- *The various techniques in selecting alternatives in MCA is beneficial for my ongoing research and courses that I am giving in areas of environmental management.*
- *More understanding about hydroinformatics*
- *Learning more about MCA has been useful*

21 of the 23 persons who experienced many benefits indicate the following areas of benefits:

- *planning and identifying objectives, alternatives, indicators and measures*



- *I learnt about RBM and DSS, now its up to me to apply this knowledge in the real life.*
- *SIMULATION*
- *Formulation of RBM problems. Optimization techniques. Applying multi criteria analysis. Types of DSS in RBM*
- *knowledge, networking, what and how to think of different problems... how to tackle certain water problems*
- *I was able to conduct high level talks with academics in farming systems analysis and the use of optimization techniques using SAS and "R" language, as well as triangulation techniques for qualitative data with participatory research professor*
- *Integrated river basin modelling Linear programming Multi-criteria anlysis MULINO Application*
- *Thanks to this course, with my new knowledge I am getting involved in some new projects at my work and I think I will be able to find better solutions to related problems. I have also gained better understanding of the processes within varoius optimisation tools which we are using within my company.*
- *I have not applied the content yet, but am planning to do so by engaging in consultancy, setting up a company or seeking a position in water resources management. The reading materials provided are a great resource for further developing the competency.*
- *RIBASIM; in solving problems using Excel; knowing some basic principles of DSS in RBM*
- *DSS, Linear, Non-linear programming, related to softwares, etc.*
- *Optimization techniques*
- *Software use (different models) and procedures of DSS.*
- *Knowledge of specialized software*
- *Increased knowledge of decision support systems, particularly with regards to available models (software and theoretical models) that can be used in DSS in RBM context.*
- *understanding role of DSS in RBM. Use of modeling tools in DSS. use of internet in communication.*
- *forum/-blog communication, following online lectures with additional lecture notes*
- *I have a bigger and clearer picture when preparing write ups and proposals and participating in discussions concerning water resources at my work place.*
- *MCA, RIBASIM and others*
- *Concepts of decision support tools and techniques in water resources management. Familiarization with decision support system software: RIBASIM, LINGO, DSSm4*

One of the 21 is very explicit giving 6 areas:

1. *Being able to develop a better understanding of the River Basin Management concept as well as how to identify and define objectives and alternatives.*
2. *Having the opportunity to learn about river modelling tool and apply RIBASIM for solving river basin management problems*
3. *Ability to develop better understanding of optimization problems (definitions of objective function, constraints and classification of linear and non-linear types) and the types of solvers available as well as the opportunity to learn and use LINGO as a solution tool.*
4. *Opportunity to learn about multi-criteria analysis and learning to solve problems using mDSS4 software. With no prior knowledge or experience in multi-criteria analysis, i now have better understanding of its concepts and the role of weights, ranking in creating evaluation matrix and the available methods for analysis such as SAW and TOPSIS*
5. *Ability to put into context how the various decision support tools could be developed and applied for solving real-world problems and understand the importance of data collection, structure and analysis activities in applying and using the various decision analysis tools as well as the integral and crucial role of internet in achieving the success of decision support tools for operational and planning management activities.*
6. *Ability to share and discuss knowledge and learning experience with peers and tutors from the comfort of my home or office.*

And ten of the 11 persons with very many benefits say that it was in the following areas:

- *I understand the approach that was used when compiling the Water Framework Directive. This has enabled me to advance my knowledge in this expanding field. DSS can be used in many areas, not just water and therefore this course was extremely helpful.*
- *I have been involved in making many decisions in water projects covered under this course and other related issues. This Course has broadened my understanding on making justifiable decisions in a very simple way. After the Course I would like to find ample time to go through the contents again and replicate the same concepts in future projects.*
- *I understand now that environmental policy makers can't anymore assume decisions without a good DSS program. Further impacts will be evaluated in a few weeks after I finish assignment 5 and "take a walk in the market" More than this, it is analyzing the scope of technicalities that this course open to me, not only in the side of the demander but also from the side of the supplier*
- *using the platform, using the proposed software, etc.*
- *Ability to select tools for different types of problems in RBM*
- *Although I had prior background in Water Resources Engineering, this course has fully demystified Decision Support Methods & Systems as used in RBM, because during my MSc it was not very extensively covered. I have gained benefits in areas such as simulation, optimisation & multi-criteria analysis; different software usage such as LINGO, RIBASIM.*
- *Assessment of different objectives in RBM, Particularly quantifying the advantage and disadvantage of the activities such as those required and those to be avoided*
- *The applications of RIBASIM and the types of analysis that are addressed by the model and the application of DSS such as MULINO.*
- *Specially, technical skills regarding the application of various programmes such as RIBASIM, MULINO and LINGO to River Basin Management.*

Again one person is more extensive:

- *Ability to handle complex decision problems in a systematic way using DSS Tools*
- *The usefulness of various decision support tools in solving RBM Problems*
- *Use of optimisation in decision making*
- *Ability to use systems approach in analysing problems for decision making*
- *Understanding the use of MCA in decision making*

### *The learning resources*

First the participants were asked about the difficulty of learning resources. Most of them give a neutral answer here, but 13 participants say (very) difficult and 11 who think they were (very) easy.

	Very difficult	Difficult	Not difficult, nor easy	Easy	Very easy	N
The learning resources were:	2.4% (1)	28.6% (12)	<b>42.9% (18)</b>	16.7% (7)	9.5% (4)	42

**Table A.3.28 Difficulty of learning resources**

But in reply to the question 'What is your opinion on the compellingness of the learning resources?' they do think that the resources were interesting or very interesting.

	Very interesting	Interesting	Not interesting, nor uninteresting	Uninteresting	Very uninteresting	N
The learning resources were:	40.5% (17)	<b>52.4% (22)</b>	7.1% (3)	0.0% (0)	0.0% (0)	42

**Table A.3.29 Compellingness of learning resources**

Also their opinion of the usefulness was very positive. Only one participant indicates a neutral position, all other think they are (very) useful.

N=42

	Very useful	Useful	Not useful, nor useless	Useless	Very useless
The learning resources were:	<b>54.8% (23)</b>	42.9% (18)	2.4% (1)	0.0% (0)	0.0% (0)

**Table A.3.30 Usefulness of the learning resources**

A question was posed on the preference for forms of learning materials: 'The content of the course was provided to you in different forms (ppt and videos, ppt and audios and just as video). Please select from the list below which form of learning material you prefer.'

	%	#
<b>ppt + video (incl. audio)</b>	<b>71.4%</b>	<b>30</b>
ppt + audio	21.4%	9
video (incl. audio)	2.4%	1
Other forms of learning material	4.8%	2

**Table A.3.31 Preference for form of learning materials**

The two persons who indicate a preference for other learning material say:

- books
- lecture notes (traditional way of teachings) the video & audio quality was not good in my computer

Fourteen

- Would be good if we could download the video lec so we can have them in our library
- Note: when the audio of the video was of good quality.
- I would have also preferred having these learning materials on CDs, because my work cant permit me stay in one place where there is internet, hence I ended up loosing much time because I travel allot to places without internet hence cant download resources.
- PDF, and a bibliography resources list
- VIDEO DOWNLOADED
- the video had this problem of not knowing when the teacher would teach and when he would just chit-chat!
- Teleconference or webcam for occassional 'face-to-face' interaction Remote screen-share facility whereby users could share screen and take control of others screen activities, which can be helpful especially in explaining or trouble-shooting model building or software application related activities
- users manuals, and background info about River basins and tools
- links given to us, references...

- I liked to have reading materials as well, to help clarify any doubts and in case the lecture does not load properly.
- books such as the one for WRP from Prof. Louks, very useful
- Guides in PDF
- lecture notes were the best

The majority holds the opinion that resources matched their learning needs.

N=42

	<b>Not at all</b>	<b>Hardly</b>	<b>Moderately</b>	<b>Largely</b>	<b>Completely</b>
They did	0.0% (0)	2.4% (1)	14.3% (6)	<b>66.7% (28)</b>	16.7% (7)

**Table A.3.32 Did the learning resources match your learning needs?**

*Appreciation of control over my own learning*

	<b>I agree completely</b>	<b>I agree</b>	<b>I neither agree nor disagree</b>	<b>I disagree</b>	<b>I disagree completely</b>
* In the beginning, I quickly got an overview of the competences involved and my current proficiency level.	26.2% (11)	<b>40.5% (17)</b>	28.6% (12)	4.8% (2)	0.0% (0)
* I had a good overview on what I had done and what I had to do.	23.8% (10)	<b>52.4% (22)</b>	14.3% (6)	9.5% (4)	0.0% (0)
* I had insight into how my learning progressed.	11.9% (5)	<b>59.5% (25)</b>	16.7% (7)	9.5% (4)	2.4% (1)
* I had the feeling that I learned exactly what I wanted to learn.	9.5% (4)	<b>61.9% (26)</b>	19.0% (8)	7.1% (3)	2.4% (1)
* I had the feeling that I could plan my own learning.	19.0% (8)	<b>42.9% (18)</b>	26.2% (11)	11.9% (5)	0.0% (0)
* I felt in control of my own learning.	7.1% (3)	35.7% (15)	<b>42.9% (18)</b>	11.9% (5)	2.4% (1)

**Table A.3.33 Opinion on the level of control you experienced over your learning process**

We see that a majority agrees (completely) on the different aspects, except for the feeling to be in control.

Taken all scores on this question together we obtain the following averages: agree (completely) 65,1%, neutral 24,6%, disagree (very much) 10,3%. This is very much in line with the results from the FMM-pilot. Still the data per person over the different aspects is diverse. Only two of the 42 participants score 'Agree' on all six aspects, and there is one person who scores 'Agree

completely' on all aspects. Five persons score averagely lower than three (neutral) on all six questions. One of them is a person who reported serious problems in technique.

#### *Appreciation of collaboration with other participants*

We asked the participants to score six statements regarding their opinion on collaborative aspects during the course on the same five-point scale.

N=42

	<b>I agree completely</b>	<b>I agree</b>	<b>I neither agree nor disagree</b>	<b>I disagree</b>	<b>I disagree completely</b>
* I had lively and stimulating discussions with other participants in the pilot.	9.5% (4)	<b>35.7% (15)</b>	<b>35.7% (15)</b>	16.7% (7)	2.4% (1)
* I learned a lot from other participants in the pilots.	23.8% (10)	28.6% (12)	<b>40.5% (17)</b>	7.1% (3)	0.0% (0)
* Other participants in the pilot were able to answer my questions.	16.7% (7)	<b>45.2% (19)</b>	26.2% (11)	9.5% (4)	2.4% (1)
* I provided useful help to other participants in the pilot.	4.8% (2)	28.6% (12)	<b>47.6% (20)</b>	16.7% (7)	2.4% (1)
* I had feedback that this help to other participants in the pilot was useful.	9.5% (4)	26.2% (11)	<b>50.0% (21)</b>	14.3% (6)	0.0% (0)

**Table A.3.34 Opinion on collaborative aspects during the course**

As a whole 45,7% participants tend to agree (completely) on having had good collaboration, but 40% is neutral and 14,3% does not agree. Other than in the FMM pilot more persons are neutral or disagree. Eleven of the 42 participants (26,2%) have an average score lower than the neutral position. Among them the two persons with grave technical problems.

#### *Use of supporting tools*

In the second part of the questionnaire the participants were asked about the use and appreciation of the several elements of the online environment.

In the PDP persons can point to a level of competence and then a label shows up that gives information about the level (such as 'Level 4: a) factual and theoretical knowledge in broad

contexts within a field of work or study; b) a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study'). The question here was 'How easy was it for you to understand the labels attached to each level?'

N=42

	Very difficult	Difficult	Not difficult nor easy	Easy	Very easy	I did not notice the labels - N/A
How easy was it for you to understand the labels attached to each level?	2.4% (1)	11.9% (5)	<b>42.9% (18)</b>	19.0% (8)	7.1% (3)	16.7% (7)

**Table A.3.35 Understanding labels**

We see that some persons have not noticed the labels, and that a majority is neutral. 14,4% think it was difficult (in de FMM pilot this was 30%)

In the course the participants were provided with an activity plan (the plan and sequence of learning activities). The question was posed: 'Would you prefer to have more freedom yourself in choosing the sequence of activities?'. There were three possibilities.

N=42	%	#
1. I prefer to be given some freedom in choosing between learning activities. So, e.g. I can choose to work on 3.2 or 4.1 whenever I like, instead of 'first 3.2 and later 4.1'.	<b>38.1%</b>	<b>16</b>
2. I want to be able to define as much as possible my own learning path. The lecture should only inform me if certain learning activities have specific requirements (e.g. you cannot do 4.3 before you finished 3.2)	35.7%	15
3. I prefer the lecturer to define the whole sequence of learning activities. I just follow his/her learning path	26.2%	11

**Table A.3.36 Preferences in freedom of choosing**

We see distributed preferences here with somewhat more preference for freedom rather than being guided by the lecturer (which was more the case in the FMM-pilot).

#### *Marking activities as completed*

The PDP allows learners to mark activities as completed. Activities that are marked as completed are removed from the list of activities that still need to be completed and they are added to the history.

We asked first whether the participants used this possibility and, if they did not, what was the reason of not using it.

N=42	%	#
------	---	---



Yes	26.2%	11
No, because I didn't notice that the possibility was available	2.4%	1
No: I noticed that this possibility was there, but I didn't know how to use it	9.5%	4
No, because I didn't consider marking activities as complete as helpful	19.0%	8
No, for another reason	<b>42.9%</b>	<b>18</b>

**Table A.3.37 Using the possibility of marking activities**

We see that a majority of 57,1% did not use this possibility.

Three persons who have used this possibility do comment:

- But only once because after that I could not find the resource of activity 1.1
- Just a note to say that there should be a reminder to the user that if the competence level is marked higher than the required level, the related activity will be removed from the activity to be performed list.
- but the function does not work perfect (if applicable of software differences between my pc and the Unesco configuration. After emailing the case to Andreja (because of a failed competence access) he advised that I should not mark the competences. But in summary it would be helpful.

Two persons who say that they did not use because didn't consider marking activities as complete as helpful

- Also, to fulfill the requests of a given activity I should act in accordance with a given course program. So the final evaluation don't belong to me, but to course teachers.
- I did in the beginning, but after that I wanted to check some part of the lecture for some assignments, so marking it as complete, would not allow me to

Of the 18 persons who say they did not use it for another reason 17 add the following comments.

Quite a few points to technical problems.

- It was said to me not to do it
- Because we were told not to do this
- Lecturer ask me don't mark competence as completed
- We were informed that the tool will not be used in this course.
- Told not to do so in an email.
- We were asked not to mark them coz of technical problems at the beginning of the course
- We received a mail where we were told not to mark as completed the tasks because they would disappear. So i never marked any as completed thereafter.
- The platform was not working in the beginning and after that I forgot it was possible
- Because there was a technical problem with the platform
- Initially I did, but after Activity 3.3, and due to technical reasons we were advised by the course coordinator not to make use of this feature.
- 1. due to some technical problems encountered during the course, I was advised not to mark an activity as completed. 2. It was necessary for me to review the past activities and see the link with the following ones.
- Because I wanted sometimes to go back to a specific activity (even if i finished it).
- Isn't if I marked it as complete, I cannot get access to it again?
- Because to use the learning materials later on as reference or to study later on the course
- I noticed it, but I don't mark it, maybe I need to read it again at the end of the course.
- In some activities, I didn't do it. I thought that in future I may need it. Means it may be useful and after completing it will be deleted.
- Because i wanted to refer back to the activity whenever i wanted.

We asked when participants marked their activities as completed. One could tick more than one choice.

N=42	%	#
When I had performed the activity, regardless of how well I performed it	11.9%	5
When I had performed the activity and thought that I mastered it well enough	33.3%	14
When I had the feeling from the description of the activity that I mastered it, and needn't perform the activity	2.4%	1
I did not use the button	<b>54.8%</b>	<b>23</b>

**Table A.3.38 Moment of marking activities**

There are here 20 persons who indicate when they marked their activities, more than the 11 who said they did in the previous question. There is one person who ticks both the first and the last option.

The next question was: 'How did you use the possibility to mark activities as completed?' Also here more options were possible.

N=42	%	#
I used it to see how many activities I already mastered through the 'Show history' button	19.0%	8
I used it to see how many activities I still had to perform through the 'Show plan' button	19.0%	8
I used it to see how far I had progressed by comparing the number of activities performed to the number of activities I still had to perform	16.7%	7
<b>I did not use the button</b>	<b>64.3%</b>	<b>27</b>

**Table A.3.39 Usage of marking completed activities**

Again a different number of persons say they did not use the possibility. Two persons tick two possibilities, and three persons tick three.

The following question aimed at finding out the effect of marking: 'What effect did the button to 'mark activities as complete' have on your learning?'

N=42	%	#
I did not use the button	<b>54.8%</b>	<b>23</b>
I used the button and I progressed more efficiently	4.8%	2
I used the button and I enjoyed having this type of overview	28.6%	12
A different effect, namely	14.3%	6

**Table A.3.40 Effects of marking**

One person ticks both 'I did not use it' and the third option...

Three persons who did not use it add a comment:

- I knew perfectly which activities I had done... And I wanted to check different parts of it while doing the assignments.
- Have only used it once
- My approach was to read through the different material/resources and try to make linkages with my past learning experience.

One person adds to the statement 'I enjoyed having this type of overview':

- It gives a sense of accomplishment.

The six persons who ticked 'a different effect' say:

- I only used it once as were told not to use it after that
- Allowed me to focus on the task at hand; but conversely, it took the completed task away so I forgot what it was that I had done. I prefer to be able to go back and review stuff if I find it has some relationship or relevance later on.
- I used this button few times in the beginning and later didn't use, because I thought that it is not necessary and useful.
- Because I have to read all the materials and try to compare all resources for better understanding
- Please refer to the reasons stated in the previous section.
- I've used this possibility only for a few activities, didn't really experience is as useful...

There is one other person who adds after choosing the second option:

- if the button worked in my case perfect I would answer like below.

The last question with regard to marking activities asked the participants to rate the possibility.

N=42

	++	+	+/-	-	--
The possibility to mark activities as complete is	9.5% (4)	<b>38.1%</b> <b>(16)</b>	35.7% (15)	16.7% (7)	0.0% (0)

**Table A.3.41 Rating of the marking-possibility**

About half of the persons think that marking activities is (very) useful.

#### *Private entries in PDP*

The following question was 'Did you create and use private (non-shared) entries in PDP? For what purpose?'

N=41

	%	#
I didn't create and use private blog entries	<b>65.9%</b>	<b>27</b>
I used private blog entries to reflect on my progress	22.0%	9
I used private blog entries for other reasons, namely.....	12.2%	5

**Table A.3.42 Private entries**

The five persons who ticked 'other reasons' say:

- 1. by accident at the beginning of the course when I did not realise the availability of option to share my blog. 2. to record personal notes relating to some aspects of the course (e.g. self queries etc.)
- Only for remarks
- To create draft blog entries that I do not want to share with others yet.
- To check some resources from the flood modelling course, which were useful to me but I could not access the resources.
- I had not noticed the public entry tick box

One person adds after the first choice: "I found it very hard to access this, so i never used it."

There is one other person who adds after choosing the second option: "To compare what I had to done with others".

One of the two persons with severe technical problems does not answer this question, not any questions following. The maximum response for the rest of the questionnaire is 41 from this point onwards.

### Communication with others

The first question was ‘Did you communicate with other participants in the pilots? In what ways?’.

N=41		
	%	#
I used (some of) these tools to communicate with other participants	<b>80.5%</b>	<b>33</b>
I didn’t communicate with these tools with other participants	19.5%	8

**Table A.3.43 Communication**

Although 8 persons say they didn’t communicate they continue answering questions.

The next question was on what tools were used and for what reason.

N=41				
	Shared Blog in PDP	Message Board in LifeRay	LearnWeb	#
I worked together on an assignment	<b>50.0% (9)</b>	44.4% (8)	11.1% (2)	18
I sought help on course content	40.5% (15)	<b>56.8% (21)</b>	10.8% (4)	37
I provided help on course content to others	<b>50.0% (12)</b>	45.8% (11)	4.2% (1)	24
I discussed course content	<b>50.0% (14)</b>	46.4% (13)	10.7% (3)	28
I discussed the competences that I had to master and the progress	<b>65.2% (15)</b>	34.8% (8)	8.7% (2)	23
I shared knowledge and learning resources	<b>53.8% (14)</b>	38.5% (10)	30.8% (8)	26
I sought help on course organisation	22.2% (4)	<b>66.7% (12)</b>	11.1% (2)	18
I provided help on course organisation others	<b>45.5% (5)</b>	<b>45.5% (5)</b>	18.2% (2)	11
I made appointments, e.g. for chat meetings	<b>62.5% (5)</b>	12.5% (1)	25.0% (2)	8
I made organisational decisions	<b>62.5% (5)</b>	25.0% (2)	12.5% (1)	8
I socialized with them	<b>50.0% (5)</b>	<b>50.0% (5)</b>	20.0% (2)	10
Other, namely ....	<b>57.1% (4)</b>	42.9% (3)	28.6% (2)	7

**Table A.3.44 Tools used for communication**

LearnWeb is used the least for communication. All 41 participants indicate that they used one or more tools for one or more activities.

Of the persons who say ‘other’, one person says “Did not communicate due to local access disruption”.

Three persons tick ‘other’ in combination with Shared Blog in PDP. They say:

- Shared my progress on the shared blog forum
- Share blog in learning experience
- I entered my learning experience

Two persons tick ‘other’ in combination with Message Board in Life Ray. One of them adds:

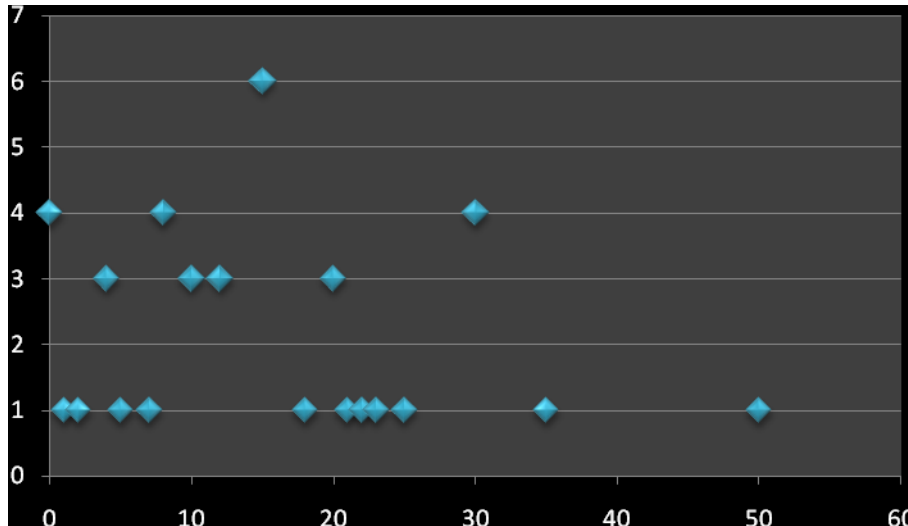
- search for questions and answers that could be useful

There is one other person who has ticked all 12 ways of using LearnWeb but adds: “I never communicated to other participants.”

And there is one person who says “Did not interact” but who ticked before “I worked together on an assignment – LearnWeb” and “I sought help on course content – LearnWeb”.

### Blogs

The 41 participants differed widely in the number of times that they created a new shared blog entry or updated an existing one. The average is more than 14 blogs.



While 4 participants did not create or update any entries, six created or updated 15 blogs, and in total 14 participants created and updated more than 15 blogs, with one person having created/updated 50 blogs.

Most participants (92,6%) read blogs from others. 7,3% of the participants did not read blogs from others; 2,4% because there were (almost) no blogs from others, 4,9% indicated there were blogs from others but they didn't read them. 34,1% read (almost) all blogs from others and 58,5% read only those blogs from others that seemed relevant to them.

82,9% of the 41 participants also rated the use of the blog as (very) useful, 12,2% as neutral, and 4,9% as useless.

### The Forum in Liferay

The question here was “For which purposes did you use the Forum in LifeRay?”

N=41	%	#
I didn't use the forum	36.6%	15
I used it to seek help on the PDP	<b>43.9%</b>	<b>18</b>
I used it to be informed about the new activities	31.7%	13
I think it will be useful in the future when I work from home and I need some advice/help	22.0%	9
I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities	9.8%	4
Other purposes	7.3%	3

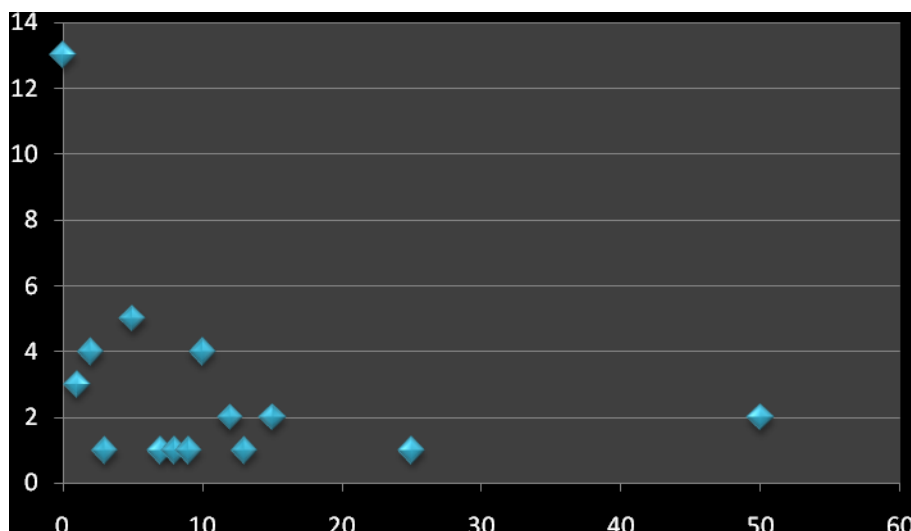
**Table A.3.45 Purposes for using the LifeRay Forum**

We see that more than one-third does not use the forum, and that most persons use it for seeking help on the PDP.

The other purposes are:

- updates or answers to other people
- I used it to provide help to others.
- Mainly to with regard to the assignments

The 41 participants differed in the number of times that they created a new Topic on the Forum or replied to an existing one from someone else in LifeRay. Thirteen say they never did anything. That is a bit less than the 15 who said they did not use the forum in the previous question. The average is 7,2 times. The maximum is 50 times (two persons).



**Table A.3.46 Creating new topics or replying**



The next question was ‘Did you read Forum Topics and threads from others?’.

N=41	%	#
No, there were (almost) no posts from others.	4.9%	2
No, there were posts from others, but I didn’t read them	12.2%	5
I read (almost) all posts from others	<b>48.8%</b>	<b>20</b>
I read only those posts from others that seemed relevant to me.	34.1%	14

**Table A.3.47 Reading Forum Topics**

The seven persons who say NO on the question of reading the Forum is again less than the 15 who said not to have used the Forum.

The following table shows the rating of the usefulness of the Forum.

N=41	++	+	+/-	-	--
My overall rating:	39.0% (16)	<b>43.9% (18)</b>	14.6% (6)	2.4% (1)	0.0% (0)

**Table A.3.48 Rating of the Forum facility**

The majority of more than 80% think that the Forum is (very) useful. Again here those who did not use the Forum have cast their votes.

#### *Participants’ profiles*

The question ‘For which of the following purposes did you read the participants’ profiles?’ is answered as follows.

N=41	%	#
To get an impression of who the people in this course are	<b>56.1%</b>	<b>23</b>
To look for specific expertise	36.6%	15
Before I contacted a specific person	7.3%	3
Other	19.5%	8

**Table A.3.49 Purposes for reading participants' profiles**

Of the 8 persons who choose for ‘Other’ two give a genuine reason:

- find out who they were...
- to see from which country

Three say they did not use it:

- Did not use this function
- I never read other participants' profiles.
- I did not read participants profiles

And the three others indicate problems:

- I tried to read others' profiles but I was denied access.
- I do not know the meaning of the question, as as far as I know, the profiles were not listed but blocked
- did not really look at other participants' profile; had limited time in general to explore the learning environment.

Two other persons add a comment. One of them had indicated the first two purposes adds: to get update with "class corridor talk". The other who looked for specific expertise says: “It’s difficult to differentiate which entry is helpful or not (some say write vague subjects)”.

On the question “How many of the participants’ profiles in LifeRay did you read?” the participants respond:

<b>N=41</b>	<b>None</b>	<b>Few</b>	<b>Half</b>	<b>Most</b>	<b>All</b>
From the participants’ profiles in LifeRay I read:	22.0% (9)	<b>58.5%</b> (24)	7.3% (3)	12.2% (5)	0.0% (0)

**Table A.3.50 Number of participants' profiles read**

#### *LearnWeb*

This section is on LearnWeb. First the question was posed for what purposes it was used.

<b>N=41</b>	<b>%</b>	<b>#</b>
To find additional resources for working on my competences	36.6%	15
To find other resources that would be useful for me	<b>61.0%</b>	<b>25</b>
To find resources that would be useful to someone else	4.9%	2
Other purpose	19.5%	8

**Table A.3.51 Purposes of using LearnWeb**

Of the 8 persons who choose for ‘Other’ four say simply that they did not use it. One person says something similar: “Has anyone been using this? I only registered now and couldn't find anything on it...”.

The three others say:

- To find a resource that can be useful in environmental management field or regulation of public utilities
- To upload learning material.
- as additional knowledge

The question “How often did you add or rate a knowledge resource in LearnWeb?” gives many ‘none’s’: 20 persons, almost half of the participants indicate to have never done that.

Eight persons say 1 time, another 7 say 2 times, and there is one person with 3 times, and two with 5 times. The average of 1,54 for this question is somewhat influenced by the two persons who indicate to have added or rated a knowledge resource in Learnweb 10 and 12 times.

Then we asked the participants to rate LearnWeb on three dimensions: to search for new resources, to share resources, and to rate and evaluate resources. All participants rate LearnWeb, also the 8 persons who indicated that they have never used it. So we present the tables two times, first with all responses and then without the 8 responses of the ones who did not use LearnWeb.

<b>N=41</b>	<b>++</b>	<b>+</b>	<b>+/-</b>	<b>-</b>	<b>--</b>
My overall rating:	14.6% (6)	<b>41.5% (17)</b>	36.6% (15)	4.9% (2)	2.4% (1)

**Table A.3.52 Rating of LearnWeb to search new resources (all)**

<b>N=36</b>	<b>++</b>	<b>+</b>	<b>+/-</b>	<b>-</b>	<b>--</b>
My overall rating:	16.7% (6)	<b>47.2% (17)</b>	27.8% (15)	5.6% (2)	2.8% (1)

**Table A.3.53 Rating of LearnWeb to search new resources (only users)**

<b>N=41</b>	<b>++</b>	<b>+</b>	<b>+/-</b>	<b>-</b>	<b>--</b>
My overall rating:	17.1% (7)	34.1% (14)	<b>41.5% (17)</b>	2.4% (1)	4.9% (2)

**Table A.3.54 Rating of LearnWeb to share resources (all)**

N=36	++	+	+/-	-	--
My overall rating:	19,4% (3)	38,9% (15)	33,3% (11)	2,8% (1)	5,6% (2)

**Table A.3.55 Rating of LearnWeb to share resources (only users)**

N=41	++	+	+/-	-	--
My overall rating:	9.8% (4)	<b>41.5% (17)</b>	<b>41.5% (17)</b>	2.4% (1)	4.9% (2)

**Table A.3.56 Rating of LearnWeb as a tool to rate and evaluate resources (all)**

N=36	++	+	+/-	-	--
My overall rating:	11.1% (3)	47.2% (15)	33.3% (12)	2,8% (1)	5.6% (2)

**Table A.3.57 Rating of LearnWeb as a tool to rate and evaluate resources (only users)**

We see that the different ratings of LearnWeb increase when we leave out the non-users. For the three dimensions we see respectively 63,9%, 58,3% and 58,3% which means (very) useful.

But this doesn't mean that partners didn't have suggestions. To the question 'What would you suggest to improve in LearnWeb?' 19 persons add something:

- The current LearnWeb is sufficient but it should be made **more user-friendly** so that provisions for finding resources and uploading are obvious to the eye.
- More **interaction** with it, more purpose for doing it.
- It is a good eLearning platform. For me it was enough. A remark only: Some way to show that assignment were accepted by the course coordinator, **a kind of digital receipt**. I believe, from my past eLearning experiences that online debate can improve a lot this type of learning processes. Just a remark, so.
- More **self-learning** from basic to expert level in order to introducing little by little to the issue
- Have it available on the **same page as the discussion forum**, so if you glance across and see that something might be relevant you can look at it. There was way too much negotiating through different pages.
- I suggest that they make the resources **more accessible**, and to make the videos/audio files **downloadable** so that they can be referred to as often as required to fully understand a competence level. My personal experience with low internet speeds & erratic connectivity in my local area included spending a lot of time trying to open these files or resources. This was a big setback for me, although it's a problem that I blame on my local internet speeds and not on LearnWeb.
- There are too **many competing platforms** for users to share and post their experiences or queries. I tend to use more PDP as I find it easier to post questions while reviewing the course, rather than having to open another window for posting queries. LearnWeb provides depository of reference materials, but most of the materials are not so related to the assignments given in the course. It would be better if **more relevant reading materials** to the assignment be added to the repository as well as others for future or further readings.
- Make it as an **assignment** to add per activity at least one resource from the web
- Like blog entry, LearnWeb entry also should be **included in the assessment**.
- To give **more resources** by course authority
- Other **formats** should be there.
- Is to see how some materials can be provided to the participants of the course like all learning materials used in DSS be provided to participant on a **CD** or other thing and all the softwares used in the course

- The **interface**
- Some videos were **hard to read**
- I think it **lacked a bit of disclosure** at the start of the course
- It could be helpful if all participants **post** parts of their assignments, the IHE post the sample solutions.
- The main reason I did not use this feature much was lack of time. I found the **workload heavy** for a person working full time - notably some of the assignments were long and some of the reading also took long (especially chapters 4 and 11 - which I relied on due to not having sufficient bandwidth to view the video lectures)
- I think it's very useful as it is.
- None

#### *Other means of communication*

N=41	%	#
No	<b>65.9%</b>	<b>27</b>
Email	19.5%	8
Chat	17.1%	7
Skype	7.3%	3
Telephone	7.3%	3
Video-conferencing	2.4%	1
Face-to-face meetings	4.9%	2
Other	2.4%	1

**Table A.3.58 Use of other means of communication**

On the question whether other means for communication almost two-third say 'No'. Furthermore we see some use of e-mail and chat. There is one person who ticks e-mail, chat, Skype, telephone and video-conferencing, and another one e-mail, chat, Skype, telephone and face-to-face meetings. One person who tick face-to-face meetings adds a comment: 'On-line friends'.

#### *Content*

The participants were asked to evaluate the course competencies with respect to a number of aspects:

N=41	Very good	Good	Fair	Poor	I don't know
Competencies contents in relation to course objectives	<b>63.4% (26)</b>	31.7% (13)	4.9% (2)	0.0% (0)	0.0% (0)
Number of topics in relation to course objective	<b>51.2% (21)</b>	46.3% (19)	2.4% (1)	0.0% (0)	0.0% (0)
Number of topics in relation to course duration	<b>36.6% (15)</b>	<b>36.6% (15)</b>	17.1% (7)	9.8% (4)	0.0% (0)

**Table A.3.59 Evaluation of course competencies**

We see a high appreciation. Only the number of topics in relation to duration is evaluated less. From the data it is not clear whether participants mean too few or too much topics.

Then it was asked to assess each different lecturer(s) and how they presented their material.

	<b>Very good</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>	<b>I don't know</b>	<b>#</b>
Dr. A. van Griensven	24.4% (10)	<b>63.4% (26)</b>	4.9% (2)	2.4% (1)	4.9% (2)	41
Prof. P. Loucks	<b>65.9% (27)</b>	26.8% (11)	4.9% (2)	0.0% (0)	2.4% (1)	41
Dr. A. Jonoski	<b>68.3% (28)</b>	31.7% (13)	0.0% (0)	0.0% (0)	0.0% (0)	41
Prof. Solomatine	31.7% (13)	<b>51.2% (21)</b>	7.3% (3)	2.4% (1)	7.3% (3)	41
ir. S.J. van Anandel	26.8% (11)	<b>53.7% (22)</b>	9.8% (4)	0.0% (0)	9.8% (4)	41
Dr. I. Popescu	36.6% (15)	<b>51.2% (21)</b>	9.8% (4)	0.0% (0)	2.4% (1)	41

**Table A.3.60 Assessment of lecturers**

Again here we see a high appreciation. Then the support and coordination of the course was assessed.

	<b>Very good</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>	<b>Don't know</b>	<b>#</b>
Carel Keuls	20.0% (8)	<b>42.5% (17)</b>	2.5% (1)	2.5% (1)	32.5% (13)	40
Wim Glas	17.5% (7)	<b>42.5% (17)</b>	2.5% (1)	5.0% (2)	32.5% (13)	40
Andreja Jonoski	<b>82.9% (34)</b>	12.2% (5)	2.4% (1)	0.0% (0)	2.4% (1)	41

**Table A.3.61 Assessment of support and coordination**

And the presentation of course and material was assessed, with good rates.

<b>N=41</b>	<b>Very good</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>	<b>Don't know</b>
Announcement of the beginning of the course	<b>65.9% (27)</b>	34.1% (14)	0.0% (0)	0.0% (0)	0.0% (0)
Material uploading and clarity	17.1% (7)	<b>51.2% (21)</b>	29.3% (12)	2.4% (1)	0.0% (0)
Help during course	34.1% (14)	<b>48.8% (20)</b>	9.8% (4)	7.3% (3)	0.0% (0)

**Table A.3.62 Assessment of presentation of course and material**

### *Comments on how to improve the pilot*

Last but not least 29 persons make a comment on how we could make this course better.

- It would be very interesting to have group assignments to encourage participation and team building. I think that it should be given a clear path for the participants to follow on the studies, although they should be given the choice to skip lectures they might have already studied before. The material is very good, and tough! Very good course, wish you the best for the coming years.
- Learning materials should have been given on CD as an alternative incase there is temporary problems with the internet because it was difficult to download and follow the online course presentations and downloading software. Illustrations should be made more detailed especially with the modelling parts. RIBASIM gave me allot of problems in this course. I also feel the time was not sufficient enough to fully accomplish the course especially for those who are working like me in a difficult environment and yet they needed the knowledge most because they have the opportunity to apply the concepts learnt.
- As I Wrote in Blog: First of all: I want to associate my voice to those ones who will take this opportunity to thank UNESCO-IHE. I must pay my recognition to Andreja Jonoski, the course coordinator, for his full commitment. Congratulations should be address, also to the technical team who gives support to the elearning platform. Also, and to be fair, I want to express my gratitude to my colleague Xafenias, for his encouragement and free support to all of us. It was unique, Thank you Xafenias, long live. Almost in the end: It was a special journey, believe me! Still, not in the end but sure in the starting of a new vision of sustainability, social justice and equity.
- I consider to get more skills in addition in order to understand some topics new for me
- I think there needs to be some time limit on when questions will be answered; and probably some form of notification to lecturers when a question is posted; and also some way of flagging a second question arising from an initial question; as I think these get overlooked.
- The course should be for four months rather than two. It allows combining work and continuing education in a better way. Most of the course I was late with respect to the calendar therefore. This significantly reduced my available time to participate on blogs.
- Watch other comments made
- This course is very useful for those who are interested in integrated approach. I have the following comment:
  - Difficult to follow the course in video thus if there is a possibility to download it.

- Availing materials in advance as online course could be taken when participant has sufficient time which is not continuous. Thus if material is availed in advance participant can cover what is possible when he/she has time
  - Course is very intensive almost every day, the duration needs revision.
- One suggestion would be to make the video/audio resources downloadable so that they can be thoroughly followed by participants without full-time internet access. Otherwise, the content of the materials and the different lecturers were great and i am really grateful for the experience and competence gained.
- The course content and material are excellent. However, I find the pace of the course is a bit of a problem to follow as I have a full time job with family and work commitments. There were several occasions where i had to be away and had no time and opportunity to access the course on-line. As a distance learning course, i thought the course could benefit from making all the course materials to the user at the start of the course and let the user to follow at their own pace. It is not realistic to expect the users to follow the course and spend certain number of hours each day on the course like a full-time student. I also believe a longer time scale for digesting the course materials and to complete the course assignment would be helpful and would enable more discussions amongst the peers. I was a bit let down by the slow connection and problems associated with viewing and downloading and assessing the course materials on-line. It was also a bit daunting to familiarize with the learning environment using PDP, LifeRay and LearnWeb, which are useful when become accustomed to using them. As a non-blogger or twitter, i find using the blog to search for items that i'm looking for can be rather time consuming. I would prefer the opportunity to 1-2-1 with course tutors or peers using webcam. I also think the ability to share screen with other users would help to make learning, solving and constructing models using RIBASIM, LINGO and mDSS4 more interesting and productive especially in debugging programming codes and comparing model constructions.
- Give more time. Especially the dynamic programming was not well understood due to lack of time
- I would like to take this opportunity to thank UNESCO-IHE staff, specially Andreja Jonoski and Ioana Popescu in successfully delivering this course. The current duration of the course is not that comfortable and it should be extended to at least 14 weeks.
- The course was more time consuming than expected and as we didn't have any information regarding number of and length of the lectures in advance; it was difficult to plan my time. Would have been good to receive this information before the course starts. In this way I could have planned when to spend time on the course and when I had time for my normal work tasks. Regarding the course content, I would have liked to get more information about how to processing data before adding it to models/optimisation tools. And more advice regarding how to analyse output from various models/optimisation tools.
- Where possible less video lectures - especially where the video is only showing the presenter and there is a PowerPoint anyway. If video lectures are essential, please cut the general conversation - such as how the pumpkin got on the steeple at cornell: I got through this and then the video link crashed! Otherwise: a great course! Thanks!!!
- The course duration was short according to the course content
- I find the assignments are extremely difficult to follow. I find the lectures are useful but I find it hard to apply what I have learnt from the lectures for the assignments. Given this is an online learning platform, I consider the level of difficulties of the assignment should be lowered, or more examples should be given as reference. It is hard to follow tens or a hundred steps (in particular the RIBASIM) but there is difficult or no way to verify the results. It is very frustrating to spend over 30 hours on a single assignment. It would be useful to have lectures to demonstrate how to use various software to solve problems.
- Make downloading easier and faster
- Related to softwares, we faced the problems to install and after installing to run the software. Due to that delay in submission of assignment / couldn't submit.
- There is need to have an option of emailing course materials and assignments in pdf as an advanced posting for students with unreliable internet access to help those students follow the course on their own. I have accessed the course materials which were put in alternative server but my local internet disruption could not allow me enjoy the smooth flow of the course, otherwise I'll continue polishing this knowledge from given materials. Thank you very much
- It would be better if you provide lecture note to read because through reading you can understand easily the PowerPoint. Software were so difficult to use, if possible you can think other methodology to use to help participants.
- By informing in details the participants about their obligations and also by informing them about the way the forum and the blog should work, from the very beginning
- This has overall been a good and informative course. My regret is that I think I did not really manage to make full use of all learning resources available, primarily due to my own time constraints and not due to the design of the learning platform. Personally I find the course load a bit heavy in addition to my full time job. I did manage to learn things though, the flexibility for assignment submission helps a lot. The main glitches I experience is during the downloading of RIBASIM (the file is very huge) and downloading of video lectures. Thanks for everything!
- The assignments were overestimated with regards to the course duration. Their required a lot of time and rendered the course stressing. Please consider this aspect for other courses.
- Unfortunately I was in commission for a week and a half during the course and I was a little late, but the teachers, materials and structure of the course I found very good



- The quality of the video and audio lectures need to be improved. The course was too involving for a certificate level. I recommend that future assignments be easy to understand as this course is meant to impart knowledge.
- Present sample solutions after finishing the assignments and analyzing by IHE. For myself the presentation could happen after finishing the assignment by all participants. All-time video lecture could be helpful (as a visual support), but the lightning conditions have to be proved. In summary it was for me an honour and pleasure to join that well organised course. Thank you very much. kinds regards
- Firstly, the slides on the mDSS4 competence 6.3 to do with the actual practice with the software were very difficult to follow. Unlike the fairly detailed Ribasim notes, there were so many details missing for the mDSS4 presentation and it was difficult for me to figure my way around. I took much longer time than necessary i felt to come to appreciate and understand the software than i should have. Secondly for Ribasim, we were given, i believe, the students version, which is ok. My only issue is that it is limited like the maximum number of links is 50, maximum number of nodes is 50, maximum number of Terminals are 9 and others that i didn't get to but this made it difficult when I had to find ways of keeping the network as required in the exercises and be able to run simulations. This too was a big limitation and time consuming on my part. Thirdly, the access to the notes by installing the 2nd server I think was a big step in making access alot easier. It was only then that i could at least listen in to the lectures during my lunch break because the availability of the internet and its stability to hold the video links was totally frustrating on my part; and that is not to mention multi-tasking with my 8am-5pm job with field work. I believe that this is the way to go. One of the questions i asked on Ribasim were not answered. It was really to do with some files i later figured but I realised that some questions were not answered and i was wondering whose sole responsibility it would be to assist answer those questions whether the other participants answer them or not. Some of the exercises like Ribasim seemed to take a lot more time than others. I'd presume that more time needs to be allocated to this competence.
- I missed a more personal approach, specially feedback on the assignments after submitting. I hardly used blog and forum because of the time laps between entering something and getting an answer. I'm afraid online learning cannot match 'traditional' class room learning. Maybe there could be a system where the student works on his assignments in sort of shared file system (such as google.docs) where the course coordinator, an assistant or other students could give comments during the work? Although it would probably be difficult to achieve this.
- The organization of assignment materials and problem statements was unclear and confusing. Little attention was given on what deliverables are expected from students. In general all assignments require re-formulation in terms of 1. What is expected from the student? 2. Availability and functionality of software tools for each assignment 3. Dedicated person for serving as a resource person to pin-point solutions related to software and content of assignments.

### A.3.5 Discussion

The overall conclusion from the DSS in RBM pilot about the participants' learning experience is quite positive. Although the learning environment was new for the participants they have adapted quite quickly. The components of the TENCompetence learning infrastructure that were tested during the pilot were well integrated within the LifeRay portal, which provided a coherent and effective learning experience.

The collaboration potential of the tools was overall appreciated well by the participants. The Blogging and Forum tools were used and highly appreciated by the participants, whereas the LearnWeb tool for sharing of resources was used less, most likely because of the quality of the intermediate version available at the time of the pilot runs. The overall experience of collaboration was high.

### A.3.6 Data collection instruments

The pre-test and the post-tests are provided next.



# TenCompetence-DSS Course - Pre-test Questionnaire

## 1. Introduction

Dear participant in the Decision Support in River Basin Management Course Pilot (DSS),

Thank you for participating in this Pilot. The Decision Support in River Basin Management On Line Course is a Pilot project. It is part of the TenCompetence project, an European Research Project, which aims to establish an infrastructure for life-long learning and competence development. As the infrastructure is under development, it is very important for us to evaluate how the infrastructure is used in this Pilot.

As part of the evaluation, we have set-up this questionnaire. Your participation in this evaluation is a compulsory part of the course and is highly appreciated, as feedback from the pilot participants is our main source for improving the infrastructure. We therefore ask you to fill in the full questionnaire.

We like to stress that by returning this questionnaire, you only grant the researchers permission to use your answers for the evaluation of the pilot. The data you provide will be made completely anonymous before data analysis. They will be used by the evaluation researchers only and not be distributed to anyone else. Thank you for your participation!

The email link that was sent to you is very personal. When using the link it enables you to go back to previous pages in the survey and update existing responses until the survey is finished or until you have fully completed the survey. After the survey is finished, you will not be able to re-enter the survey.

The questionnaire contains 23 short questions in total; Please answer all the questions.

Thank you for your attention and good luck!

The DSS-Course Research Team

# TenCompetence-DSS Course - Pre-test Questionnaire

## 2. Background information

\* 1. What's your age?

\* 2.

What's  
your  
gender?

☐ Female

☐ Male

\* 3. Country in which you live in?

\* 4. Highest educational degree that you earn:

☐ Bachelor's degree

☐ University master's degree

☐ PhD

\* 5. Profession: I am a

\* 6. Current job function:

\* 7. Number of years of experience in the professional field of Decision Support Systems:

# TenCompetence-DSS Course - Pre-test Questionnaire

## 3. Competence Development

**\* 8. How would you describe your current proficiency level with respect to Decision Support Systems in River Basin Management?**

- ☐ Novice
- ☐ Beginner
- ☐ Intermediate
- ☐ Advanced
- ☐ Expert

**\* 9. How important is it for you to acquire the following types of competences?**

	Completely unimportant	Unimportant	Not unimportant nor important	Important	Very important
* Cognitive knowledge (to know what Flood Modelling is about)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Functional skills (to know how to do Flood Modelling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Social skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to behave according to the rules and values of the profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to guide my future use by reflection on current practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to find creative solutions for problems related to this competence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 10. How often have you followed a training or course which was competence-based?**

- ☐ Never
- ☐ Once
- ☐ Two or three times
- ☐ Four or more times
- ☐ I don't know what competence-based training is

# TenCompetence-DSS Course - Pre-test Questionnaire

## 4. Experience with web-based learning

- \* 11. How would you describe your experience with distance learning?  
The total number of courses / modules etc. that I have followed through distance learning is:

- \* 12. How often have you participated / do you participate in online (webbased) discussion forums?

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

- \* 13. How often have you participated / do you participate in online chats?

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

- \* 14. How often have you used / do you use search functions for finding information, such as google or database search?

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

- \* 15. How often have you used / do you use ratings by others for selecting information for your own use?

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

- \* 16. How often have you shared / do you share data and files with other people in online communities *for leisure (free time) purposes*?

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

- \* 17. How often have you shared / do you share sharing data and files with other people in online communities *for professional purposes*?

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

18. Which of the following reasons for following the Decision Support Systems in River Basin Management pilot apply to your situation?  
Tick all of the answers listed below that apply to your situation.

☐ I want to keep up to date within my existing function or job

☐ I want to study for a new function or job or improve my current job level

☐ I want to reflect on my current competences to look which functions and jobs are within my reach or to help me define new learning goals

☐ I want to improve my proficiency level of a specific competence

☐ I want some support on a non-trivial learning problem

☐ I want to explore the possibilities in a new field (learning network) to help define new learning goals

## TenCompetence-DSS Course - Pre-test Questionnaire

**\* 19. Which of the following describe(s) the involvement of your employer?**

**Tick all of the answers listed below that apply to your situation**

- ☐ My employer is not involved in my following this course
- ☐ My employer would have paid the fee for this course
- ☐ My employer has obliged me to follow this course
- ☐ My employer has allocated part of my working hours for following this course
- ☐ Following this course successfully is necessary for me to keep my current job function
- ☐ Following this course successfully is necessary for me to obtain a new job function at my current employer.
- ☐ I follow this course as part of a trajectory for people who are unemployed or who are in danger of becoming unemployed.

**\* 20. The course will provide you with a diversity of web-based learning resources. Your learning path, for this course, is well established throughout the course.**

**However, for other courses, there are several ways in which you could learn (a suggested learning path to follow or the freedom to follow your own learning path).**

**What would be, in general, your option for the most supportive learning:**

- ☐ Support me with learning resources only
- ☐ Support me with learning resources + an outlined path + the possibility to choose my own learning path
- ☐ Support me with learning resources + a path that I need to follow

# TenCompetence-DSS Course - Pre-test Questionnaire

## 5. Facilities

**\* 21. The computer you use most for accessing the course is best described as**

☐ New (less than one year old)

☐ Neither new nor old

☐ Very old (more than a few years old)

**\* 22. The Internet connection you use most for accessing the course can best be described as**

☐ Slow

☐ Medium

☐ Fast

☐ Very fast

**23. Your Username/screenname in the DSS course:**

# TenCompetence-DSS Course - Post-test Questionnaire

## 1. Introduction

Dear participant in the Decision Support for River Basin Management Pilot Course (DSS),

Thank you for participating in this Pilot Course from UNESCO-IHE within the TenCompetence project. We have set-up this questionnaire for evaluating the used digital infrastructure, as well as the course organisation. Your participation in this evaluation is obligatory but also highly appreciated, as feedback from the pilot participants is our main source for improving the infrastructure and the course. We would therefore like to ask you to fill in this questionnaire as soon as possible. We like to stress that by returning this questionnaire, you only grant the researchers permission to use your answers for the evaluation of the pilot. The data you provide will be made completely anonymous before data analysis. They will be used by the evaluation researchers only and not be distributed to anyone else. Thank you for your participation!

In the questionnaire, we will start by asking a few questions on your overall appreciation, and after that we will zoom in on the separate elements of the Personal Development Planner, which was used to follow the course. The questionnaire contains 46 questions in total; answering the questions will take about 20-25 minutes. Please consider some patience, sometimes it takes a few seconds for a page to load before your clicking on an answer is captured!

Thank you for your attention and good luck!

The DSS-Course Research Team



# TenCompetence-DSS Course - Post-test Questionnaire

## 2. Background information

\* 1. What's your age?

\* 2. Your Username in the DSS course:

\* 3.  
What's  
your  
gender?

☐ Female

☐ Male

\* 4. How many hours did you spend on the DSS course ? (best guess)

Total number of hours:

\* 5. Was your learning process hindered by technical problems?

	Not at all	Hardly	Moderately	Largely	Completely
I experienced the following level of hindrance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# TenCompetence-DSS Course - Post-test Questionnaire

## 3. Overall appreciation

This part of the questionnaire is aimed at your overall appreciation of your learning experience.

### Competence development

#### \* 6. How much have you learned with respect to the following types of competences?

	(Almost) nothing	Little	Not little, not much	Much	Very much
* Cognitive knowledge (to know what Decision Support for River Basin Management is about)	jñ	jñ	jñ	jñ	jñ
* Functional skills (to know how to choose between Decision Support Systems in River Basin Management)	jñ	jñ	jñ	jñ	jñ
* Social skills	jñ	jñ	jñ	jñ	jñ
* Knowing how to behave according to the rules and values of the profession	jñ	jñ	jñ	jñ	jñ
* Knowing how to guide my future use of Decision Support Systems in River Basin Management by reflection on current practice	jñ	jñ	jñ	jñ	jñ
* Knowing how to find creative solutions for problems related to this competence	jñ	jñ	jñ	jñ	jñ

#### \* 7. What is your opinion on this way of learning?

	I agree completely	I agree	I neither agree nor disagree	I disagree	I disagree completely
I enjoyed this way of learning	jñ	jñ	jñ	jñ	jñ

#### \* 8. What is your opinion on further development of this competence?

	Certainly	Yes	Perhaps, perhaps not	No	Certainly not
I wish to continue developing this competence / these competencies further	jñ	jñ	jñ	jñ	jñ

# TenCompetence-DSS Course - Post-test Questionnaire

- \* 9. When compared to the beginning of the pilot, did you already experience benefits from participating in the pilot?

	(Almost) nothing	Little	Not little, not much	Much	Very much
I experienced the following level of benefits:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Impact

10. I have experienced benefits in the following areas:

Appreciation of learning resources

- \* 11. What is your opinion on the easiness or difficulty of the learning resources?

	Very difficult	Difficult	Not difficult, nor easy	Easy	Very easy
The learning resources were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* 12. What is your opinion on the compellingness of the learning resources?

	Very interesting	Interesting	Not interesting, nor uninteresting	Uninteresting	Very uninteresting
The learning resources were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* 13. What is your opinion on the usefulness of the learning resources?

	Very useful	Useful	Not useful, nor useless	Useless	Very useless
The learning resources were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* 14. The content of the course was provided to you in different forms (ppt and videos, ppt and audios and just as video). Please select from the list below which form of learning material you prefer.

☐ [1] ppt + video (incl. audio)

☐ [2] ppt + audio

☐ [3] video (incl. audio)

☐ Other forms of learning material

Other forms of learning material, namely

- \* 15. Did the learning resources match your learning needs?

	Not at all	Hardly	Moderately	Largely	Completely
The learning resources matched my learning needs:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# TenCompetence-DSS Course - Post-test Questionnaire

## Appreciation of your control on the learning path

### \* 16. What is your opinion on the level of control you experienced over your learning process?

	I agree completely	I agree	I neither agree nor disagree	I disagree	I disagree completely
* In the beginning, I quickly got an overview of the competences involved and my current proficiency level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had a good overview on what I had done and what I had to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had insight into how my learning progressed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had the feeling that I learned exactly what I wanted to learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had the feeling that I could plan my own learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I felt in control of my own learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appreciation of collaboration

### \* 17. What is your opinion on collaborative aspects during the course?

	I agree completely	I agree	I neither agree nor disagree	I disagree	I disagree completely
* I had lively and stimulating discussions with other participants in the pilot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I learned a lot from other participants in the pilots.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Other participants in the pilot were able to answer my questions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I provided useful help to other participants in the pilot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had feedback that this help to other participants in the pilot was useful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# TenCompetence-DSS Course - Post-test Questionnaire

## 4. Use of Supportive Learning Tools environment (1)

In the second part of the questionnaire we ask you about your use and appreciation of the several elements of the virtual learning environment (LifeRay, PDP, LearnWeb).

### Self-assessment with PDP

- \* **18. When pointing at a level of a competence, a label shows up that gives information about the level (such as 'Level 4: a) factual and theoretical knowledge in broad contexts within a field of work or study; b) a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study').**

	Very difficult	Difficult	Not difficult nor easy	Easy	Very easy	I did not notice the labels - N/A
How easy was it for you to understand the labels attached to each level?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* **19. In this DSS course UNESCO-IHE provided you with an activity plan (the plan and sequence of learning activities). Would you prefer to have more freedom yourself in choosing the sequence of activities?**

☐ I prefer to be given some freedom in choosing between learning activities. So, e.g. I can choose to work on 3.2 or 4.1 whenever I like, instead of 'first 3.2 and later 4.1'.

☐ I want to be able to define as much as possible my own learning path. The lecture should only inform me if certain learning activities have specific requirements (e.g. you cannot do 4.3 before you finished 3.2)

☐ I prefer the lecturer to define the whole sequence of learning activities. I just follow his/her learning path

### Selecting activities from those still to be done

#### Marking activities as completed

The PDP allows learners to mark activities completed. Activities that are marked as completed are removed from the list of activities that you still need to complete

- \* **20. Did you make use of the possibility to mark activities as complete? If not, why not?**

☐ Yes

☐ No, because I didn't notice that the possibility was available

☐ No: I noticed that this possibility was there, but I didn't know how to use it

☐ No, because I didn't consider marking activities as complete as helpful

☐ No, for another reason

My other reason (please specify)

# TenCompetence-DSS Course - Post-test Questionnaire

## 5. Use of Supportive Learning Tools environment (2)

**\* 21. When did you mark activities as complete? Please tick all that apply:**

- ☐ When I had performed the activity, regardless of how well I performed it
- ☐ When I had performed the activity and thought that I mastered it well enough
- ☐ When I had the feeling from the description of the activity that I mastered it, and needn't perform the activity
- ☐ I did not use the button

**\* 22. How did you use the possibility to mark activities as completed? Please tick all that apply:**

- ☐ I used it to see how many activities I already mastered through the 'Show history' button
- ☐ I used it to see how many activities I still had to perform through the 'Show plan' button
- ☐ I used it to see how far I had progressed by comparing the number of activities performed to the number of activities I still had to perform
- ☐ I did not use the button

**\* 23. What effect did the button to 'mark activities as complete' have on your learning? Please tick all that apply**

- ☐ I did not use the button
- ☐ I used the button and I progressed more efficiently
- ☐ I used the button and I enjoyed having this type of overview
- ☐ A different effect, namely

The other effect was (please specify)

**\* 24. How would you rate the possibility to mark activities as complete?**

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
The possibility to mark activities as complete is	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# TenCompetence-DSS Course - Post-test Questionnaire

## 6. Use of Supportive Learning Tools environment (3)

### Private blog entries

**\* 25. Did you create and use private (non-shared) entries in PDP? For what purpose? (Please tick all that apply)**

- ☐ I didn't create and use private blog entries
- ☐ I used private blog entries to reflect on my progress
- ☐ I used private blog entries for other reasons, namely.....

Namely (please specify) ....

### Learning activities and the use of knowledge sharing tools

The learning environment provided you with several tools to communicate with other participants: Shared Blog in PDP, the message Forum in LifeRay, LearnWeb.

**\* 26. Did you communicate with other participants in the pilots? In what ways? (Please tick all that apply)**

- ☐ I used (some of) these tools to communicate with other participants
- ☐ I didn't communicate with these tools with other participants (please continue with Question 42)



# TenCompetence-DSS Course - Post-test Questionnaire

**\* 27. If you did communicate with other participants, what tool did you use for this and for what reason?**

**Please tick all that apply.**

	Shared Blog in PDP	Message Board in LifeRay	LearnWeb
I worked together on an assignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I sought help on course content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I provided help on course content to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I discussed course content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I discussed the competences that I had to master and the progress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I shared knowledge and learning resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I sought help on course organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I provided help on course organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I made appointments, e.g. for chat meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I made organisational decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I socialized with them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, namely ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Namely (please specify)

**Use of Shared Blog in PDP**

**\* 28. How often did you create a new shared blog entry or update an existing blog entry?**

My estimated number of new shared blog entries or updates of existing blog entries is:

**\* 29. Did you read shared blogs from others?**

☐ No, there were (almost) no blogs from others.

☐ No, there were blogs from others, but I didn't read them

☐ I read (almost) all blogs from others

☐ I read only those blogs from others that seemed relevant to me.

**\* 30. What is your overall rating of the blog facility?**

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# TenCompetence-DSS Course - Post-test Questionnaire

## Use of the Discussion Forum in LifeRay

### \* 31. For which purposes did you use the Forum in LifeRay?

- ☐ I didn't use the forum
- ☐ I used it to seek help on the PDP
- ☐ I used it to be informed about the new activities
- ☐ I think it will be useful in the future when I work from home and I need some advice/help
- ☐ I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities
- ☐ Others purposes

In case of other purposes (please specify)

### \* 32. How often did you create a new Topic on the Forum or Reply to an existing Topic entry from someone else in LifeRay?

My estimated number of new shared blog entries or updates of existing blog entries is:

### \* 33. Did you read Forum Topics and threads from others?

- ☐ No, there were (almost) no posts from others.
- ☐ No, there were posts from others, but I didn't read them
- ☐ I read (almost) all posts from others
- ☐ I read only those posts from others that seemed relevant to me.

### \* 34. What is your overall rating of the Forum facility in LifeRay?

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Profiles in LifeRay

### \* 35. For which of the following purposes did you read the participants' profiles? Please tick all that apply.

- ☐ To get an impression of who the people in this course are
- ☐ To look for specific expertise
- ☐ Before I contacted a specific person
- ☐ Other

In case of other purposes (please specify)

# TenCompetence-DSS Course - Post-test Questionnaire

\* 36. How many of the participants' profiles in LifeRay did you read?

	None	Few	Half	Most	All
From the participants' profiles in LifeRay I read:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Use of LearnWeb

\* 37. For what purpose did you use LearnWeb? Please tick all that apply:

- ☐ To find additional resources for working on my competences
- ☐ To find other resources that would be useful for me
- ☐ To find resources that would be useful to someone else.
- ☐ Other purpose

In case of other purposes (please specify)

\* 38. How often did you add or rate a knowledge resource in LearnWeb?

My added / rated number of knowledge resources is:

\* 39. What is your rating of LearnWeb in order to *search* new resources?

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 40. What is your rating of LearnWeb in order to *share* resources with your classmate/workmate?

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 41. What is your rating of LearnWeb as a tool to *rate and evaluate* resources?

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

42. What would you suggest to improve in LearnWeb?

## TenCompetence-DSS Course - Post-test Questionnaire

**\* 43. Did you use means other means for communication with other participants? (Please tick all that apply)**

☐ No

☐ Email

☐ Chat

☐ Skype

☐ Telephone

☐ Video-conferencing

☐ Face-to-face meetings

☐ Other, namely ....

Namely (please specify)

# TenCompetence-DSS Course - Post-test Questionnaire

## 7. Content evaluation of the DSS course

- \* **44. Please evaluate the course competencies with respect to the following aspects:**

	Very good	Good	Fair	Poor	I don't know
Competencies contents in relation to course objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of topics in relation to course objective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of topics in relation to course duration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* **45. Please asses each different lecturer(s) and how they presented their material:**

	Very good	Good	Fair	Poor	I don't know
Dr. A. van Griensven	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prof. P. Loucks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dr. A. Jonoski	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prof. Solomatine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ir. S.J. van Andel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dr. I.Popescu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* **46. Please assess the support and coordination of the course:**

	Very good	Good	Fair	Poor	Don't know
Carel Keuls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wim Glas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Andreja Jonoski	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* **47. Please asses how the course and material was presented:**

	Very good	Good	Fair	Poor	Don't know
Announcement of the beginning of the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Material uploading and clarity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help during course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**48. If you would like to make a comment, on how we could make this course better, please add it here:**

Thank you for your participation!

## Appendix 4: UNESCO-IHE FMM02 pilot

### A.4.1 Description of the pilot

**Table A.4.1 Description of the FMM pilot**

<b>(Second) Flood Modelling for Management pilot</b>	
<p>Short description:</p> <p>The overall goal of the “Flood Modelling for Management” (FMM) competence development program is to support water professionals in the development of the competences that make them capable of maximizing economic and social well-being in an equitable manner (without compromising the sustainability of their ecosystem) by using catchment, river basin and urban flooding models. FMM second run, in May-July,2009 give the learners the freedom of choosing their learning path.</p> <p>The infrastructure used for this second run of the FMM is the one developed within TENCompetence. The competence development program was offered free of charges in exchange for evaluation activities. Yet a basic entrance level to participate in the program was set. Preference is given to applicants from the Nile Basin countries to bring synergy with the activities centred around the parallel pilot component Decision Support Systems (DSS01, May 2009).</p>	
Name and description of the Associate Partner	<ol style="list-style-type: none"> <li>1.UNESCO-IHE Institute for Water Education, The Netherlands Development and delivery of the learning content for the pilot; development of competence profiles and individual competences</li> <li>2. Sofia University, "St. Kliment Ohridski", Bulgaria Web deployment of TENCompetence tooling infrastructure; Technical support with using the toolset</li> <li>3. UvA, OUNL and UPF: Pilot evaluators Evaluation of the pilot</li> </ol>
User groups	<p>UNESCO-IHE offers – besides its MSc programmes and several kinds of short courses – on-line training for water professionals in the field. These water professionals can come from the same organisations, can be groups or teams, or individual people, seeking competence development in their professional water management career from an academic institute.</p> <p>The FMM pilot accepts as learner individuals with a need to develop competences to perform their job better, for whom receiving a kind of formal certificate is crucial in their career perspective, and for whom the choice of doing an on-line training is a personal choice.</p> <p>There are two types of user groups in the pilot:</p> <ol style="list-style-type: none"> <li>1) UNESCO-IHE learning moderators and content authors; and</li> <li>2) Young mid-career professionals, on who the learning focus is.</li> </ol> <p>The user group in the FMM pilot is composed of young mid-career water professionals, interested in competence development in flood modelling. UNESCO-IHE has an experienced, adult and geographically spread group of learners who will bring in and exchange their knowledge and experiences, while studying in the course. There can be a big variation within the target group, e.g. with respect to the entrance level. The minimum entrance level is Bachelor in Water Science or Civil Engineering. The participants are expected to be between 25 - 45 years old.</p>

	<p>Within the second pilot, as well as in the first pilot, there might be possibilities to treat the pilot learners as a group, who have to cope with a difficult situation (e.g. a certain risk of flood in a given area) in which group collaboration increase the chance of finding optimal solutions and strategies. Especially for the participants from the Nile Basin area, the pilot environment may enable them to build up a knowledge base, which can be shared, updated, improved and used for training purposes by certified participants. The community of flood modelling professionals (certified and non-certified) will become connected to the community of learners who are following the Decision Support for Water management (DSS01) pilot.</p>
Setting	<p>The second FMM pilot will be run technically from Sofia server, in Bulgaria, with content support from UNESCO-IHE in Delft, The Netherlands. A TENCompetence server is installed in Sofia, Bulgaria. The tutors are in Delft and the participants are from all around the world countries. The participants will learn from home or work locations. Peer learning will be stimulated. The actual learning is primarily an individual process, as we have seen during the FMM01 in 2008.</p> <p>The competence profile will have a flexible learning path. The pilot offers two sub-Competence Profiles: River basin Flood Modeller and Urban Flood Modeller. The schedule of learning activities, including assessment is a 8 week program. Assessments of the competences are done via assignments at the end of each competence. Learning materials are developed as learning activities and comprises of documents, models, videos, audios etc. After completion of the course and finalisation of the assessment the participants will receive a ‘certificate of attendance’ for the competence development module on Flood Modelling for Management conducted by UNESCO-IHE.</p>
Roles	<p>The different possible roles involved in the pilot from its design until its completion and the estimated number of persons that will play each role are:</p> <ul style="list-style-type: none"> <li>* Staff installing the software in Sofia - 1 person</li> <li>* Developer of GUI container linking to TENCompetence tools (in Sofia) - 2 persons</li> <li>* Content developer - 2 persons (UNESCO-IHE)</li> <li>* Competence provider - 2 persons (UNESCO-IHE)</li> <li>* Competence assessment provider - 2 persons (UNESCO-IHE)</li> <li>* Staff providing technical support (help-desk) - 2 persons (UNESCO-IHE) + 1 person (Sofia)</li> <li>* Learner - Registered young to Mid career Water Professionals from all over the world (Europe, Africa, Middle East, Asia, Latin America)</li> <li>* Tutor/coordinator/mentor/study advisor - 4 persons (UNESCO-IHE)</li> <li>* Expert - 1 expert (UNESCO-IHE)</li> <li>* Assessor - 2 persons (UNESCO-IHE)</li> <li>* Preparation and implementation WebSurvey evaluation - 1 person (UNESCO-IHE)</li> <li>* Pilot evaluator - 3 persons (UVA, OUNL and UPF members)</li> </ul>
Tooling	<p>This pilot will use the following TENCompetence tools: PCM database, Web-PDP, LifeRay portal and LearnWeb. In addition the content for the course will be provided by web resources deployed on a UNESCO-IHE web server. The above mentioned TENCompetence tools will provide support, through different combinations of these tools, to:</p>



	<p>1. New pedagogical &amp; organisational models for Lifelong Competence Development This support will primarily be offered by the PCM database, which will be used for structuring and organising the competencies within the competence profile</p> <p>2. Support individuals to search the most suitable formal and informal learning activities This will be provided primarily through the WebPDP, although the LifeRay Portal and the LearnWeb tools can offer support to individuals, by enabling peer learning.</p> <p>3. Stimulate pro-active sharing of resources LearnWeb will be the primary tool for sharing resources</p> <p>4. Provide various forms of user support services LifeRay portal will serve as a primary integrator of various user support services</p>
Aim and expectation of the demonstrator	<p>This second pilot of the FMM course is important for UNESCO-IHE, because it confronts the learners with a new way of approaching the competence based learning, as opposed with the first FMM pilot. In this new approach the learners have the flexibility to choose their path for learning, while in the first pilot a clear defined learning path has been set-up. Another important issue in this new pilot is the new technical infrastructure to support life-long learning, which is web-based as opposed to the first pilot when the PDP (Personal Development Plan) was installed on the learners computers. In addition for this run there are more tools available, as opposed to the first run.</p> <p>The aim of the pilot is to evaluate the (available) TENCompetence environment and pedagogical model in its support of improving competences in Flood Modelling and Management for participants. The pilot is working in a non-European environment where the effectiveness of the infrastructure in a non-Western cultural context can be validated. The pilot involves making the link between higher education and Competence Based Learning Networks. Learners' results and satisfaction are expected to be higher in this second version of the pilot.</p> <p>The types of learning supported by this pilot are self-organised learning in principal and communities of practice.</p>
Context	<p>Within the scope of the first and second component of the water management pilot an online program Flood Modelling for Management (FMM) was developed and run using the TENCompetence (TC) infrastructure and pedagogical models. The FMM pilots enable UNESCO-IHE to improve its ambition to provide water education to a wider community through e-learning. UNESCO-IHE has considerable experience and material to validate the TENCompetence objectives. A major activity of the pilots is to convert educational material on FMM suitable to be used in the e-learning environment in such a way that it is competence-oriented.</p>
Business model / case shown in the demonstrator	<p>The TENCompetence infrastructure, although limited by its available tools at the time of piloting, enabled UNESCO-IHE to rethink its educational and lifelong learning strategy from a competence based framework.</p> <p>The infrastructure itself has served several business criteria: Quality of service: the ability to address specific customer requirements;</p>

	Internal management: the provision of an infrastructure to visualize to management what long learning comprises; Process improvement (productivity or efficiency): a set of features to communicate interactively with customers; Flexibility: the possibility to choose from features, and finally Strategic fit: the ability - due to the TENCompetence, operationalised infrastructure framework - to align our eLearning services in the future with specific, life long learning supportive tools
Business / valorization opportunities	At the moment we do not foresee other specific business valorization opportunities.
Relevance of TENCompetence for the demonstrator context	TENCompetence offered an interesting opportunity for FMM because it was for the first time that competence based learning was offered to water engineer practitioners. The TENCompetence infrastructure and models offered the FMM pilots a way of providing competence development opportunities that could be personalized and followed asynchronously. Participating in a European initiative like TENCompetence enabled UNESCO-IHE to experiment new ways of teaching offered the learners a new infrastructure, appropriate for competence-based learning. As the other pilots are mentioning, the project facilitated the possibility of sharing experiences with other European institutions.
Competence profiles and competences involved	<p>The competence profiles which will be used in the second run of the FMM pilot are the same as the ones for the first FMM pilot. The difference is in the approach to learn of the participants to the course. In the first pilot the learning path has been decided by the expert while in the second FMM run the learners will have the freedom to choose their learning paths.</p> <p>The list of competence and sub-competence profiles are:</p> <ol style="list-style-type: none"> <li><b>1. Understanding the Competence concept</b></li> <li><b>2. Understanding the context of flood modeling</b> <ul style="list-style-type: none"> <li>o Knowing the context of flood modeling within the society and the environment</li> <li>o Knowing the context between Hydroinformatics and Flood Modeling – learning</li> <li>o Judge, consider and weight ecological issues related to flood management – learning</li> <li>o Learn how to locate flood resources on the web</li> </ul> </li> <li><b>3. Ability to identify causes of floods</b> <ul style="list-style-type: none"> <li>o The ability to identify meteorological inputs leading to floods</li> <li>o Knowing what aspects of and in what way rainfall – runoff processes influences flood generation</li> </ul> </li> <li><b>4. Ability to analyze and understand flood processes</b> <ul style="list-style-type: none"> <li>o Knowing to formulate mathematically the free surface flow processes</li> <li>o Knowing the principles of modelling river floods</li> <li>o Knowing the principles of modelling urban floods</li> </ul> </li> <li><b>5. Ability to model floods</b> <ul style="list-style-type: none"> <li>o Being able to model rainfall-runoff</li> <li>o Knowing how to model catchment processes</li> <li>o Being able to identify the flood routing technique to be applied for a specific case study</li> <li>o Knowing the principles of data-driven modelling</li> </ul> </li> <li><b>6. Ability to simulate floods</b> <ul style="list-style-type: none"> <li>o Being able to do hydrological simulations (HEC-HMS + flood routing)</li> </ul> </li> </ol>

	<ul style="list-style-type: none"> <li>○ Being able to do hydrodynamic modelling (Mike11)</li> <li>○ Being able to simulate urban flooding</li> <li>○ Being able to simulate floods using data-driven modelling</li> <li>○ Being able to do flood forecasting</li> </ul> <p><b>7. Ability to interpret and evaluate impacts of flood</b></p> <ul style="list-style-type: none"> <li>○ The ability to assess uncertainties of model predictions</li> <li>○ Knowing to develop and apply a DSS for flood management</li> </ul>
Training needs	<p>The manuals for the TENCompetence tools to be used in this pilot are user manuals for:</p> <ul style="list-style-type: none"> <li>-Web-PDP</li> <li>-LifeRay</li> <li>-LearnWeb</li> </ul>
Implementation plan	<p>The implementation plan of the second “Flood Modelling for Management” pilot is carried out as follows:</p> <ul style="list-style-type: none"> <li>- January -First half of May 2009, the announcement of the pilot on the UNESCO-IHE website and call for applications, for water professionals from all over the world</li> <li>- Second half of May 2009, analysis of application, admittance and registration</li> <li>- In parallel with the two above mentioned activities the content and actual implementation/integration of the FMM activities into the TENCompetence tools is realised along with the development of the required resources and creation of suggested competence development plans</li> <li>- 3rd week of May 2009: learner registration and announcement of the registration details (user names and password was sent out to participants)</li> <li>- 27-28 May 2009 – conducting pre-evaluation questionnaire</li> <li>- 27 - 28 May 2009 sent out, by e-mail, material for the participants on how to install and use the TENCompetence tools</li> <li>- 28 May- 22 July 2009 – the FMM02 pilot run</li> <li>- 23-24 July 2009 - conducting post evaluation questionnaire</li> <li>- 25 July 2009 data collection for evaluation.</li> </ul>
Could you mention one or more results with which you would consider your pilot a success?	<p>As it will be seen in the evaluation results, the pilot has been attended by 65 participants, and 38 of them finalized the course. The post-questionnaire evaluation shows that it was well appreciated by the participants, and the ones who dropped from the course were actually overwhelmed by the content for such a short period.</p>

### A.4.2 Implementation

The implementation of the second FMM pilot was carried out according to the plan as follows:

**January-April 2009:** development of the resources and units of learning, adaptation of the competence profiles and associated competences and competence development plans, for a run without guidance in choosing the competences.

**March- May 2009:** call for applications to the course, evaluation of applicants and admission

**May:** platform building and participants registration to the course

**27th may –24 July 2009:** pilot run. The pilot started as planned

**August 2009:** data collection for evaluation

### *Registration of the participants*

The registration period took place from March till May 2009. The pilot was advertised in the institute website. The participants of the 1<sup>st</sup> pilot were informed of the possibility to take part in the parallel pilot, the DSS. Many of the participants were also informed by the previous participants to the FMM01 pilot.

### *Actual number of participants*

- Participants/users: 65 water professionals from all around the World, who wanted to develop their skills in the area of flood modeling for management. All of them started the pilot, but only 38 finalized the competence development plans. Some of the participants dropped off because this pilot was too intensive to be carried out in parallel with their working time.

### *Training*

- Training for participants in using the platform was done by sending them *user manuals* and *step by step guidance*. It took them 2 days to get acquainted with the system and start learning.

Different user guides were created to help the users to get familiar with the TENCompetence tooling. The participants had the possibility to look up the following guides on the FMM02 Liferay home page:

- Liferay user guide (Including explanation on how to access to the Web PDP, to use the Self-assessment activities, dictionaries, forum, training guides)
- LearnWeb user guide
- Web PDP user guide

In many cases, the participants preferred to print out the guide instead of just looking it up on the computer screen.

### *Workload of learners*

On average, the users have worked 3 hours a day from their home-computers

### *Tools used*

**PCM (Personal Competence Management):** This tool was used by the experts to create the Competence Profiles, Competences, and Activities.

**Liferay:** was the portal used to integrate the TENCompetence tools (WebPDP and LearnWeb), as well as offering generic features like a Course Calendar, a Forum for discussion, access to participant Profiles, Course files storage (hidden for participants).

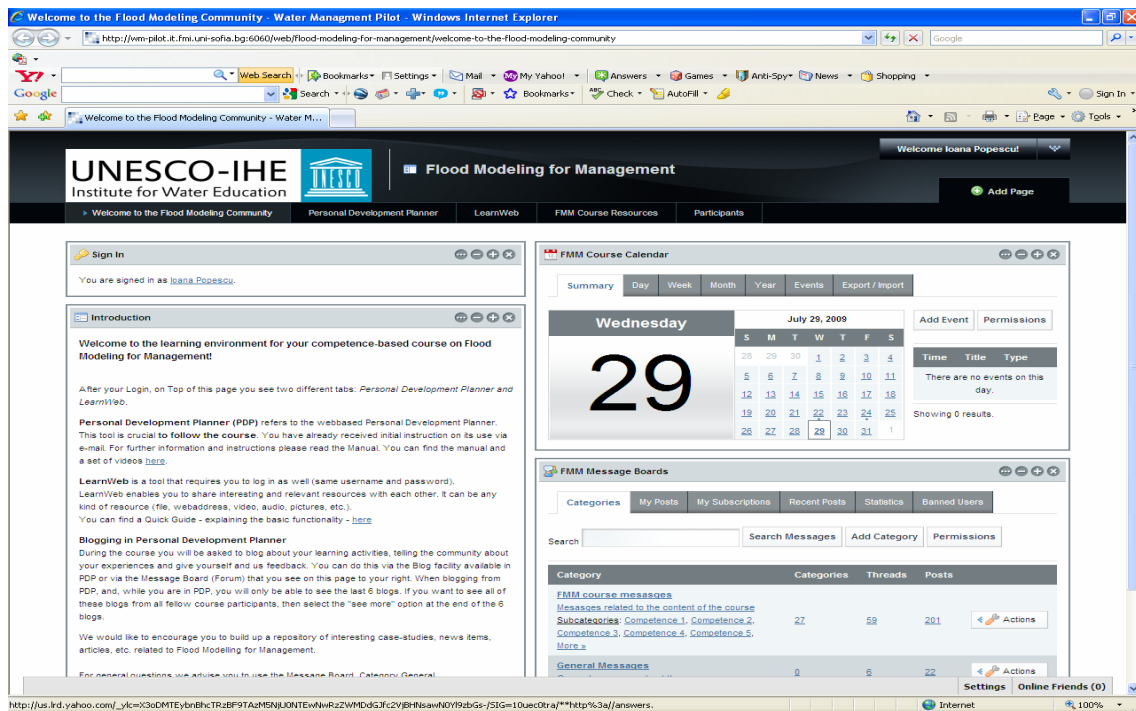


Figure A.4.1 Screenshot of the LifeRay environment in the FMM Pilot (UNESCO-IHE)

Web PDP (*Personal Development Plan*): This tool was used by the content developers to create the description of the activities and to associate the resources for each activity. The participants used the Web PDP as the central tool for planning their learning process and accessing the different activities available in the pilot (see Figure A.4.2).

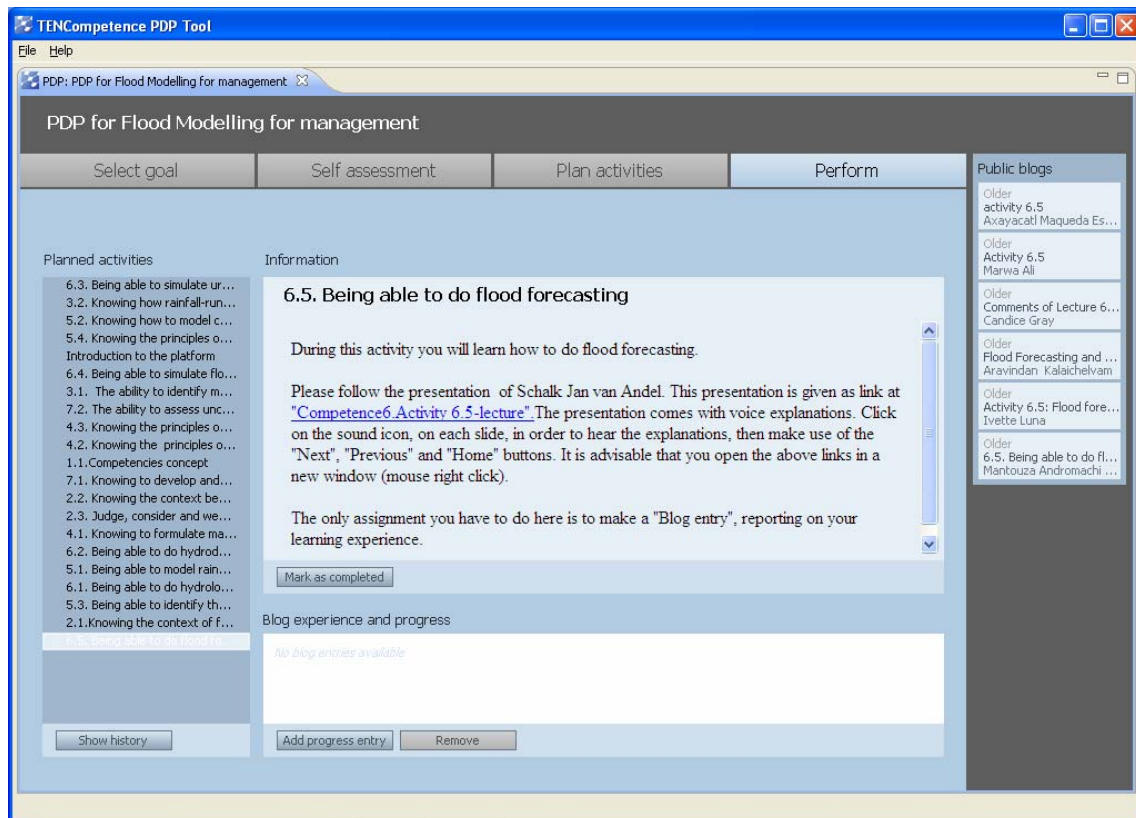


Figure A.4.2 Screenshot of the Web PDP tool in FMM Pilot (UNESCO-IHE)

*LearnWeb*: It is a container of Web 2.0. tools to manage and share resources (*photographs, videos, etc.*), *make group work, etc.* It was used by a limited group of participants. All participants were informed on the possibility to make use of LearnWeb, but usage was not obligatory.

### A.4.3 Evaluation methodology

Table A.4.2 indicates the different data sources considered to evaluate the pilot according to the evaluation plan (Hernández-Leo et al., 2008). Similar data sources were employed in the first and second version of the pilots (Cycle 1 and 2). Quantitative data were collected in two questionnaires: a pre-test answered at the launch of the pilot dealing with the participants' characteristics and expectations of the pilot; a post-test evaluation of the pilot, which was completed by the participants the last week of the experience (see Appendix A.4.6.). The log files generated by the TENCompetence infrastructure and the Google Analytics of the Liferay portal also provide quantitative data for the analysis.

**Table A.4.2 Data sources for the evaluation of the third ICT Teacher training pilot and labels used in the text to quote them**

Data source	Type of data	Labels
<i>Pre-test, post-test questionnaires</i>	Quantitative and qualitative participant characteristics, expectations and evaluation.	[pre-test] [post-test]
<i>Log files</i>	TENCompetence server logs of the PDP tool (taking into account only the participants' logs)	[logs]
<i>Visits to the web portal and tools</i>	Google Analytics records about the number of visits to the Liferay site and the integrated tools (including self-assessment tests, LearnWeb) as iframes (records including visits of the participants and the supporting staff)	[visits]
<i>Context of the pilot</i>	Qualitative descriptions of the context characteristics in which the pilot is framed (previous section)	[context]

### A.4.4 Evaluation results

#### *Participants' characteristics*

The pre-test questionnaire was done at the end of May 2009. 63 persons completed the questionnaire, 20 women and 43 men, with an average age if 33,6 years old. Their country of birth is very diverse as shown in Table A.4.3 [pre-test].

Country	Number of participants
Mexico	4
Nigeria	4
Colombia	3
Ethiopia	3
Ghana	3
Greece	3



Brasil	2
Costa Rica	2
Germany	2
Honduras	2
Hong Kong	2
India	2
Kenya	2
Northern Ireland	2
Sudan	2
Trinidad-Tobago	2
Afghanistan	1
Australia	1
Bangladesh	1
Chile	1
Dominican Republic	1
El Salvador	1
England	1
Iran	1
Italy	1
Namibia	1
New Zealand	1
Singapore	1
Slovakia	1
Spain	1
Sri Lanka	1
Switzerland	1
Tanzania	1
The Netherlands	1
United Arab Emirates	1
United Kingdom	1
United States	1
Zambia	1
Zimbabwe	1

**Table A.4.3 Country of birth of the FMM02 pilot participants (UNESCO-IHE)**

Twenty-three (36,5%) of the 63 participants hold a Bachelor's degree, 37 (58,7%) a University Master's degree, and three participants (4,8%) hold a PhD. The answers to the question 'What is your profession' give the following list of 36 professions:

n=63	
<b>Profession</b>	<b>#</b>
Civil Engineer	16
Hydrogeologist	7
Environmental and sanitary engineer	3
Environmental Engineer	2
Irrigation Engineer	2
PhD student	2
Water Resources Engineer	2
Agricultural Engineer	1
Agronomist engineer (hydrosience's master)	1
Architect and urbanist	1
Civil and water resources engineer	1
Coastal Modeller	1
Construction Engineer	1



Consulting Engineer	1
Engineer	1
Environmental consultant/Scientist	1
Environmental Scientist	1
Environmentalist	1
Geologist	1
GIS Specialist	1
Graduate Environmental Engineer	1
Humanitarian worker	1
Hydraulic Engineer	1
Lawyer in Physics	1
Lecturer	1
Mechanical Engineer	1
Mining and metallurgical engineer	1
Physical and chemical oceanography	1
Professor - Researcher	1
Project Engineer (Water Resources)	1
Project Manager	1
Research Associate	1
Research scientist	1
Water and environmental engineer	1
Water and Sanitation Engineer	1
Water Engineer by Profession	1

**Table A.4.4 Professions of the FMM02 pilot participants (UNESCO-IHE)**

The reported current job function of the participants produces an even more diverse picture.

<b>Current job function</b>
As a project client in government department
Chief Civil Engineering design
Civil engineer (3 times)
Civil engineering lecturer (part-time) and phd student
Coastal engineer
Coastal engineering and marine modeling
Coastal modeller
Consulting engineer
Consulting hydrogeologist
Co-ordination water resource projects
Coordinator of attention to emergencies and councils of river basin
Data analysis and assessment
Design engineer
Design of flood protection systems
Drainage system planning
Education Project Manager working on School construction and Watsan
Employee in a water-management project at a research institute
Environmental Impact Assessments, Pollution investigation, water sciences
Geographical information systems technician
Hydraulic and Hydrologic Modelling
Hydrographic surveyor
Hydrologic specialist
Hydrological Data processing and analysis and Flood Monitoring
Hydrological studies related to define federal zones and to design structures projected in rivers and channels.

Hydrologist research
Hydrology and Hydrogeology
I am studying a Master in Sustainable Development
Inspector of Works and Consultancies.
Irrigation engineer
Irrigation systems planning, rehabilitation, design and installation. Studies the weather patterns (i.e hail susceptibility, flood regimes, wind etc) in tobacco production to discover best methods of planting, cultivation and harvesting. Gather, analyze and integrate data from a variety of sources including field observations, satellite images, aerial photographs and existing maps using GIS software and related equipment for use in Water Resources Management. Identification and recruiting new growers to the Tian Ze Tobacco contract growing scheme. Giving agronomic advice to contracted farmers. Making field visits and inspections. Assessing progress of contracted farmers and making recommendations. Crop assessment and making forecasts of expected yield. Administrative control on subordinates, functionaries and functions.
Learning & development manager
Lecturer and researcher in natural resources management faculty
Monitoring and screening of development applications, research and data analysis
Nowadays just studying to the master degree
Phd student
Planning, Designing, Implementing, Supervising of different community based infrastructure projects mainly focusing on water resources development
Professor - researcher
Project Related like report writing & Presentation, Data collection , Data analysis, Field Survey, Designing of course Material for the E-course etc.
Project technical leader for wastewater treatment projects
Providing GIS expertise for NRM based projects
Research & consultancy
Research assistant
Research officer
Researcher in Flood risk management
Senior hydrologist
Senior project engineer
Site engineer
Site Engineer on Water Supply project
Studying master's degree
Support engineer, national institute of roads in colombia
Teacher
Teaching and research
To do hazard and risk analysis in an environmental institution
Training, research and consultancy
Undertake field work in order to efficiently implement construction and rehabilitation of hydraulic structures in the district
Unemployed
United nations volunteer
Use of method and model for regional water planning
Water and sanitation projects engineer
Watsan delegate (project manager)

**Table A.4.5 Current job function of the FMM02 pilot participants (UNESCO-IHE)**

The number of years of experience in the professional field of Flood Modelling for Management was as follows. 27 persons fill a zero, so 43% do not have any experience in the field. 15 (24%) have 2 years or less of experience, 10 have an experience between 2 and 5 years and eleven persons have 5 years or more of experience, of which two persons have an experience of 15 and 18 years.

The question “How would you describe your current proficiency level with respect to Flood Modelling for Management” is answered by all participants minus 1. The scores are: 10 (15.9%)

declare themselves as novice, 26 (42.3%) as beginners, 24 (38.1%) as intermediate and 3 (4.8%) as advanced.

For the question “Is it important for you to acquire the following types of competences?” we see that almost everyone thinks that most competences are (very) important to acquire. Only social skills have a somewhat lower score.

	--	-	+/-	+	++	#
* Cognitive knowledge (to know what Flood Modelling is about)	3.2% (2)	0.0% (0)	4.8% (3)	27.0% (17)	65.1% (41)	63
* Functional skills (to know how to do Flood Modelling)	1.6% (1)	0.0% (0)	1.6% (1)	25.4% (16)	71.4% (45)	63
* Social skills	1.6% (1)	9.7% (6)	9.7% (6)	51.6% (32)	27.4% (17)	62
* Knowing how to behave according to the rules and values of the profession	1.6% (1)	0.0% (0)	7.9% (5)	47.6% (30)	42.9% (27)	63
* Knowing how to guide my future use by reflection on current practice	1.6% (1)	0.0% (0)	9.5% (6)	41.3% (26)	47.6% (30)	63
* Knowing how to find creative solutions for problems related to this competence	1.6% (1)	0.0% (0)	0.0% (0)	12.7% (8)	85.7% (54)	63

**Table A.4.6 Answers to the question “How important is it for you to acquire the following types of competences?”**

The experience with competence-based training is also varied. 24 (38.1) have no experience, 12 (19%) have followed once a competence-based course, 11 (17,5%) two or three times and 3 (4,8%) four or more times. 13 (20,6%) say that they do not know what competence-based training is.

#### *Experience with web-based learning*

Table A.4.7 shows the total number of courses / modules etc. that the participants have followed through distance learning, and Table A.4.8 illustrates how often they have participated in online (webbased) discussion forums. The data in both tables are quite similar regarding the use of chats. Again, the results indicate that the participants have quite different experience in the use of technology for learning or other purposes.

**n=63**

Never	33	52,4%
Once	14	22,2%
Two or three times	8	12,7%
Four or more times	8	12,7%

**Table A.4.7 Number of distance learning courses followed by the FMM02 participants**

**n=63**

Never	23	36.5%
Occasionally	17	27.0%
Sometimes	14	22.2%
Often	7	11.1%
Very often	2	3,2%

**Table A.4.8 How often participants participated in forums before**

**n=63**

Never	12	19.0%
Occasionally	18	28.6%
Sometimes	15	23.8%
Often	6	9.5%
Very often	12	19.0%

**Table A.4.9 How often participants participated in chats before**

Their experience seems to be higher regarding the use of search functions for finding information, such as google or database search. All of them state that they search sometimes – often - very often (see Table A.4.10). In average they only use the ratings by others for selection occasionally as shown in Table A.4.11. The frequency with which they share files with other people in online communities for leisure (free time) purposes is not very high in average (see Table A.4.12). This frequency is a bit higher when the sharing is performed for professional purposes (see Table A.4.13).

**n=63**

Never	0	0%
Occasionally	0	0%
Sometimes	5	7.9%
Often	8	12.7%
Very often	50	79.4%

**Table A.4.10 How often participants used search functions for finding information before**

**n=63**

Never	7	11.1%
Occasionally	16	25.4%
Sometimes	20	31.7%
Often	14	22.2%
Very often	6	9.5%

**Table A.4.11 How often participants use the ratings to select information**

**n=63**

Never	16	25.4%
Occasionally	15	23.8%
Sometimes	18	28.6%
Often	6	9.5%
Very often	8	12.7%

**Table A.4.12 How often participants share files with other people in online communities for leisure purposes**

**n=63**

Never	15	23.8%
Occasionally	14	22.2%
Sometimes	14	22.2%
Often	10	15.9%
Very often	10	15.9%

**Table A.4.13 How often participants share files with other people in online communities for professional purposes**

### *Facilities*

When asked about the computer in use for accessing the course and about the Internet-connection, 40% say to have a new computer, less than a year old, while the others say they have a computer neither old or new. No one has a computer more than a few years old.

Three participants have a slow Internet-connection (5%), 43% say medium, 46% have a fast connection, and 4 persons have a very fast connection with Internet.

### *Motivation*

Upon the question “Which of the following reasons for following the Flood Modelling pilot apply to your situation?” six possible answers were presented that participants could tick that apply to their situation. In total 198 answers are ticked. They are shown in Table A.4.14. Seven

participants tick only one answer. Often more answers are ticked; the average is 3 of the 6 answers. Five persons tick all 6 reasons. More than 60% of the answers indicated that the main reasons to participate in the pilot were “to keep up to date within their existing function/job” and “to study for a new function/job or improve their job level”. This emphasis in the job-related motivation to enroll in the pilot is also supported by Table A.4.15. For most of the participants the employer is not involved in their following this pilot, however some of them are using part of their working hours to follow the pilot or think that the employer would have paid for their fees.

n=63

I want to keep up to date within my existing function or job	60,3%
I want to study for a new function or job or improve my current job level	69,8%
I want to reflect on my current competences to look which functions and jobs are within my reach or to help me define new learning goals	54,0%
I want to improve my proficiency level of a specific competence	63,5%
I want some support on a non-trivial learning problem	12,7%
I want to explore the possibilities in a new field (learning network) to help define new learning goals	54,0%

**Table A.4.14 Participants’ reasons for following the FMM02 pilot**

n=63

My employer is not involved in my following this course	63.5%
My employer would have paid the fee for this course	6.3%
My employer has obliged me to follow this course	7.9%
My employer has allocated part of my working hours for following this course	25.4%
Following this course successfully is necessary for me to keep my current job function	17.5%
Following this course successfully is necessary for me to obtain a new job function at my current employer.	19.0%
I follow this course as part of a trajectory for people who are unemployed or who are in danger of becoming unemployed.	7.9%

**Table A.4.15 More on the reasons for following the FMM02 pilot (FMM02-UNESCO-IHE)**

### *Learning style*

This is the dimension that ranges from completely self-steering to being guided by the system with little choice. In the questionnaire first an intro was given: “The course will provide you with a diversity of web-based learning resources. In addition, your learning can be supported in several ways. We can outline a path for you, we can ask you to follow a specific learning path, or we can give you the freedom to follow your own path.” Then, they also have to tick one of three possibilities could be ticked on the basis of the question: “What would be most supportive for your learning”? Table A.4.16 shows the options shown to the participants and their answers. The majority wants to have as much possibilities and freedom to choose.

Navigation (n=63)	#	%
1. Learning resources only	3	4,8%
2. Learning resources + outline path + choose own path	47	74,6%
3. Learning resources + outline path to be followed	13	20,6%

**Table A.4.16 Participants’ preferred way to support their learning**

### *Results of the experience*

A total of 38 participants, 14 women (36,8%) and 24 men (63,2%), have filled the post-test questionnaire after the UNESCO FMM pilot. Their average age is 32,6 years old, with a standard

deviation of 7 years; all participants are between 23 and 48 years old. The median lies at 31 years old.

A number of participants who did not finalized the course, did not want to finalize the post-questionnaire as well. The reason for not finalizing the pilot, was the load of learning, which they did not expect, and they could not keep up with it, because of their own work load.

They come from a variety of countries, 28 in total, spread over the entire world.

Country	Number of participants
Colombia	3
Nigeria	3
Ethiopia	2
Germany	2
Ghana	2
Greece	2
Honduras	2
India	2
Australia	1
Bangladesh	1
Brasil	1
Chile	1
Costa Rica	1
El Salvador	1
Italy	1
Kenya	1
Mexico	1
Namibia	1
New Zealand	1
Northern Ireland	1
Slovakia	1
Spain	1
Sri Lanka	1
Sudan	1
Trinidad-Tobago	1
United Arab Emirates	1
United Kingdom	1
United States	1

**Table A.4.17 Professions of the FMM02 pilot participants answering the post-test (FMM02-UNESCO-IHE)**

Fourteen of the 38 participants hold a Bachelor's degree, 23 a University Master's degree, and one participant holds a PhD. In the pre-test we asked about the number of years of experience in the professional field of Flood Modelling for Management: 19 persons fill a zero, so 50% does not have any experience in the field. Three persons have 10 years of experience, twelve have an experience between 2 and 5 years, four have less than 2 years of experience [pre-test].

Also from the pre-test are the following answers. The question "How would you describe your current proficiency level with respect to Flood Modelling for Management" is answered by all 38 participants minus 1. The scores are: The scores are: 8 (21.1%) declare themselves as novice, 17 (44.7%) as beginners, 12 (31.6%) as intermediate and 1 (2.6%) as advanced.

For the question "Is it important for you to acquire the following types of competences?" we see that almost everyone thinks that most competences are important to acquire. Only social skills have a somewhat lower score.

<b>Important (n=38)</b>	<b>+++</b>	<b>++</b>	<b>+/-</b>	<b>-/-</b>
Cognitive knowledge (to know what Flood Modelling is about)	92,1%		5,3%	2,6%
Functional skills, know how to do Flood Modelling	97,4%		0,0%	2,6%
Social skills	78,9%		10,5%	10,5%
Knowing how to behave according to the rules and values of the profession	92,1%		5,3%	2,6%
Knowing how to guide my future use by reflection on current practice	92,1%		5,3%	2,6%
Knowing how to find creative solutions for problems related to this competence	97,4%		0,0%	2,6%

**Table A.4.18 Answers to the question “How important is it for you to acquire the following types of competences?”**

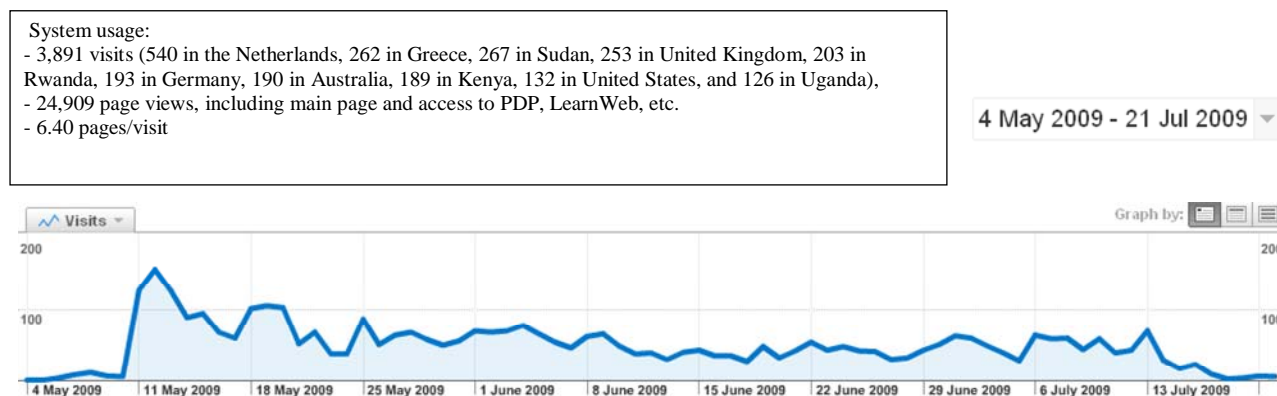
The question “How often have you followed a training or course which was competence-based?” is answered as follows in the [pre-test] by the participants also answering the post-test.

<b>n=38</b>		
Never	12	31,6%
Once	8	21,1%
Two or three times	8	21,1%
Four or more times	1	2,6%
I don't know what competence-based training is	9	23,7%

**Table A.4.19 How often participants have followed a competence-based training**

### General

The average number of hours spent on the FMM course is somewhat more than 100 hours, with a standard deviation of 72,1 hours [post-test]. There is one person who indicates not to have followed the course. He does not respond to any further questions of this evaluation, except the next one on technical problems. Two persons say they have spent 300 hours on the course. The median lies at 82 hours. The [visits] to the LifeRay portal where the communities of the FMM02 and DSS pilots were sited were counted by Google Analytics. The results are shown in Figure A.4.3.



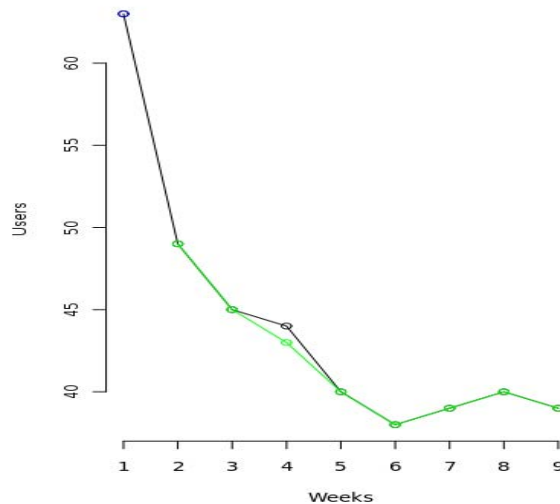
**Figure A.4.3 Usage of the TENCompetence system during the official period of the UNESCO-IHE pilots [visits]**

The second iteration of the UNESCO FMM pilot is implemented in a formal-learning setting of professional further education. One characteristic of this setting is that all participants jointly start the pilot. A second characteristic is that the first session is usually taken for preparing the course's organisation. In the pilot this session has been used by all participants for registering with the TENCompetence services and for familiarising with the system. The user numbers in Figure A.4.4 illustrate this development, where almost all participants registered at the event in the



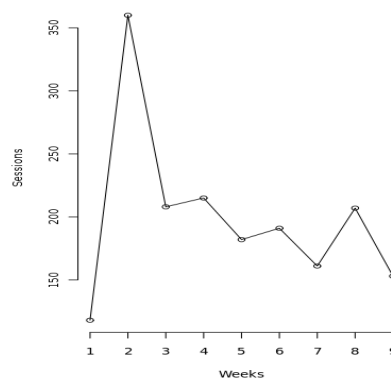
pilot's first week. In week 4 two participants re-registered with the system with different user names.

Over the nine weeks of this pilot the numbers of participants who used the TENCompetence core services were stabilizing around 40 active participants. This number shows only how many different users were using the core services in each week. A closer data introspection unveils that not all participants were using the system actively in every week.



**Figure A.4.4 Users per week**

Figure A.4,5 shows that while all participants used the TENCompetence core services during the first week, the session number is at about the same level. This means that most participants accessed the TENCompetence core services once. The actual system usage started in the second week, when most participants familiarised themselves with the system under normal learning conditions. Within the normal usage the second week is special, because of the high number of sessions during this week. This can be explained that the participants were exploring the system and its components. From the third week onwards the number of sessions stabilizes around 200 sessions per week, which refers in average to about 4 sessions per user and week. From the available data it is visible that the TENCompetence core services were continued to be used event after the end of the pilot.



**Figure A.4.5 User sessions per week**

### Technical problems

Regarding the technical issues, the average level of hindrance lies around moderately (see Table A.4.20). The person who did not spend any time on the course indicates ‘completely’ here. Apparently the severe problems could not be overcome. From here onwards the maximum response is 37.

	Not at all	Hardly	Moderately	Largely	Completely	Response Count
Level of hindrance	13.2% (5)	26.3% (10)	<b>39.5% (15)</b>	13.2% (5)	7.9% (3)	38

**Table A.4.20 Answers to the question “was your learning process hindered by technical problems?”**

### Competence development

Table A.4.21 shows the perceptions of the participants regarding the improvement in different types of competences. Overall the scores are at the positive side. The majority of the participants rate the first four competences as having learned much or very much. The overall average rating of 3,59 indicates that as well. Of the 1 to 3 persons that indicate to have learned (almost) nothing, one person has had severe technical problems and he indicates to have learned nothing in all categories of competences. For the others there is no link to technical problems.

	--	-	+/-	+	++	#
* Cognitive knowledge (to know what Flood Modelling is about)	5.4% (2)	2.7% (1)	2.7% (1)	<b>56.8% (21)</b>	32.4% (12)	37
* Knowing how to find creative solutions for problems related to this competence	2.7% (1)	2.7% (1)	24.3% (9)	<b>45.9% (17)</b>	24.3% (9)	37
* Knowing how to guide my future use of flood modelling tools by reflection on current practice	2.7% (1)	0.0% (0)	27.0% (10)	<b>54.1% (20)</b>	16.2% (6)	37
* Functional skills (to know how to do Flood Modelling)	2.7% (1)	5.4% (2)	24.3% (9)	<b>54.1% (20)</b>	13.5% (5)	37
* Knowing how to behave according to the rules and values of the profession	5.4% (2)	13.5% (5)	<b>43.2% (16)</b>	29.7% (11)	8.1% (3)	37
* Social skills	8.6% (3)	22.9% (8)	<b>34.3% (12)</b>	25.7% (9)	8.6% (3)	35

**Table A.4.21 How much have the participants think they have learned with respect to different types of competences**

### Appreciation of this way of learning

Moreover, it is clear that most participants enjoyed this way of learning very much (see Table A.4.22). The one person who doesn’t like it at all has had severe technical problems; this is different person than the one who didn’t learn a thing. Furthermore, only two of the 37 participants are unsure about continuing their development, as shown in Table A.4.23 [post-test]. Besides there are some [visits] to the Liferay portal for the FMM pilot after the end of the formal period of the pilot. In particular, between the end of July and the end of September (2009), there have been a total of 22 visits with a 3.41 pages/visit. The visits come from 8 different counties, which match up with those countries visiting the site during the formal period of the pilot.

	<b>I agree completely</b>	<b>I agree</b>	<b>I neither agree nor disagree</b>	<b>I disagree</b>	<b>I disagree completely</b>	<b>Rating Average</b>	<b>Response Count</b>
I enjoyed this way of learning	24.3% (9)	<b>62.2% (23)</b>	10.8% (4)	0.0% (0)	2.7% (1)	1.95	37

**Table A.4.22 Participants' opinion on the TENCompetence way of learning**

	<b>Certainly</b>	<b>Yes</b>	<b>Perhaps, perhaps not</b>	<b>No</b>	<b>Certainly not</b>	<b>Rating Average</b>	<b>Response Count</b>
I wish to continue developing these competencies further	<b>56.8% (21)</b>	37.8% (14)	5.4% (2)	0.0% (0)	0.0% (0)	1.49	37

**Table A.4.23 Participants' opinion on further development of the competences**

Table A.4.24 shows that the participants experience *much* benefits from the pilot. Of the three persons that did not experience benefits, one has had severe technical problems. He says: *"Unable to take part in the pilot because of not having operating systems that were not compatible with the access to course materials and also was moved to an area by my employers during most of the course period where the internet facilities are not very good or virtually non-existent."* The other person with heavy technical problems says that the benefits were *"very little, because I couldn't access the half of the lectures"*.

	<b>(Almost) nothing</b>	<b>Little</b>	<b>Not little, not much</b>	<b>Much</b>	<b>Very much</b>	<b>Rating Average</b>	<b>Response Count</b>
I experienced as benefits	8.1% (3)	10.8% (4)	16.2% (6)	<b>43.2% (16)</b>	21.6% (8)	3.59	37

**Table A.4.24 Benefits from participating in the pilot when compared to the beginning of the pilot**

Upon asking in what areas benefits were experienced, the following answers were given.

One person who says that little benefits were experienced says:

- *I already know how competence system works.*

Four persons who indicate to have experienced not little, not much benefits, say:

- *I used some of the knowledge to work on a catchment delimitation work based on topographical data.*
- *To know a little more about flooding modelling*
- *I was able to understand the essentials of modelling and the first assignment helped in web mining*
- *How to use online tools for e-learning.*

Thirteen persons who experienced *much* benefits indicate the following areas of benefits:

- *Introduction to new software. Mathematical concepts*
- *I have received a lot of ideas about to take decisions about what kind of system to use for hydrological and hydraulic modelling. This knowledge can be used in several ways in environmental practices and risk and hazard decision. Of course I need some additional practice to find a good use of tools used during the course.*
- *Especially for the concept of flood modelling, the way to use MIKE11, and HEC-HMS software*

- *understanding the mathematics behind the modelling process understanding the different modelling techniques*
- *Hydrological modelling in general. (2) Uncertainty propagation (3) Decision Support System (DSS)*
- *Flood modelling and Decision support systems*
- *The impact of flood on the society and the importance of flood modelling to aid management decisions as well as the need to make the public aware of what to do to deal with flood.*
- *My first experience on online learning. Enjoyed learning under experienced experts that are ready to guide one every step of the way.*
- *- using software such as HEC and MIKE - learning about new topics as hydro informatics and DDM - using the learning environment was very interesting as well as being able to communicate with the other course participants and follow the blogs and forum*
- *Knowledge in: other aspect of learning tools, Flood modelling*
- *use modelling tools*
- *Knowing the Flood modelling within the Society & the Environment, the process of flood forecasting , mostly in the use of the HEC-HMS & to develop & apply a DSS for flood management*
- *Benefits of skills, time utility, resources availability, etc*

And the eight persons with *very much* benefits say that it was in the following areas:

- *Modelling systems Decision Support Systems Platform discuss in some cases*
- *understanding the many different categories of flood models and the variety of specific different models within those categories. My understanding of fundamental hydrologic processes and uncertainty analysis was also enhanced*
- *I learnt about flood management and modelling. Interaction with people. I also found out while a lot of people wanted to help others were downright hostile.*
- *-Ability to simulate flooding. -Know hydrologic and hydraulic soft wares. -Online way of learning.*
- *I increased my knowledge in different areas, and strengthening other skills. The flexibility in the timetable allows each person to better coordinate the timing and availability of activities to learn*
- *About how modelling floods, benefits of floods modelling, find web resources to study possible floods in different parts of the world.*
- *in flood modelling generally - to know what it is, especially to know how to do flood modelling, which tools can be used,I appreciate clear instructions to modelling tools and a lot of interesting and useful knowledge*
- *I have enjoyed being able to use the different software available for flood modelling even though I had many technical difficulties and was unfamiliar with the software which made it very challenging for me.*

### *The learning resources*

First the participants were asked about the difficulty of learning resources. Most of them give a neutral answer here, with 8 participants who say ‘difficult’ and another 8 who think they were (very) easy.

	Very difficult	Difficult	Not difficult, nor easy	Easy	Very easy	Rating Average	Response Count
The learning resources were:	0.0% (0)	21.6% (8)	<b>56.8% (21)</b>	18.9% (7)	2.7% (1)	3.03	37

**Table A.4.25 Opinions on the easiness or difficulty of the learning resources (FMM02-UNESCO-IHE)**

But they do think that the resources were interesting or very interesting.

	Very interesting	Interesting	Not interesting, nor uninteresting	Uninteresting	Very uninteresting	Rating Average	Response Count
The learning resources were:	37.8% (14)	<b>59.5% (22)</b>	2.7% (1)	0.0% (0)	0.0% (0)	1.65	

**Table A.4.26 Opinions on the compellingness of the learning resources (FMM02-UNESCO-IHE)**

Also their opinion of the usefulness was very positive. Only one participant indicates a neutral position, all other think they are (very) useful.

13. What is your opinion on the usefulness of the learning resources?							
	Very useful	Useful	Not useful, nor useless	Useless	Very useless	Rating Average	Response Count
The learning resources were:	<b>48.6% (18)</b>	<b>48.6% (18)</b>	2.7% (1)	0.0% (0)	0.0% (0)	1.54	37

**Table A.4.27 Opinions on the usefulness of the learning resources (FMM02-UNESCO-IHE)**

Moreover, the majority holds the opinion that resources matched their learning needs.

	Not at all	Hardly	Moderately	Largely	Completely	Rating Average	Response Count
They did	2.7% (1)	2.7% (1)	21.6% (8)	<b>59.5% (22)</b>	13.5% (5)	3.78	37

**Table A.4.28 How the learning resources match their learning needs (FMM02-UNESCO-IHE)**

### *Appreciation of control over my own learning*

Taken all scores on the question related to the appreciation of control over their own learning (see Table A.4.29) together we obtain the following averages: agree (completely) 65,4%, neutral 24,1%, disagree (very much) 10,5%. Still the data per person is diverse. Only three of the 37 participants score 'Agree' on all six aspects. There is one person who has a lower average score than 2 (disagree). This person had indicated before to have had very serious technical problems. Four persons score averagely lower than three (neutral) on all six questions. One of them is the other person with the problems in technique. The participants disagree the most over the first statement and the least over the last one. Of course indicating that one disagrees is not necessarily negative: persons can prefer not to be in control in all different respects.

	I agree completely	I agree	I neither agree nor disagree	I disagree	I disagree completely	Rating Average	Response Count
* In the beginning, I quickly got an overview of the competences involved and my current proficiency level.	11.1% (4)	<b>47.2% (17)</b>	25.0% (9)	13.9% (5)	2.8% (1)	3.50	36
* I had a good overview on what I had done and what I had to do.	5.4% (2)	<b>64.9% (24)</b>	21.6% (8)	5.4% (2)	2.7% (1)	3.65	37
* I had insight into how my learning progressed.	8.3% (3)	<b>61.1% (22)</b>	19.4% (7)	8.3% (3)	2.8% (1)	3.64	36
* I had the feeling that I learned exactly what I	10.8% (4)	<b>48.6% (18)</b>	27.0% (10)	8.1% (3)	5.4% (2)	3.51	37

wanted to learn.							
* I had the feeling that I could plan my own learning.	13.5% (5)	<b>51.4% (19)</b>	24.3% (9)	10.8% (4)	0.0% (0)	3.68	37
* I felt in control of my own learning.	16.2% (6)	<b>54.1% (20)</b>	27.0% (10)	0.0% (0)	2.7% (1)	3.81	37

**Table A.4.29 How your opinion on the level of control you experienced over your learning process (FMM02-UNESCO-IHE)**

#### *Appreciation of collaboration with other participants*

We asked the participants to score six statements regarding collaboration on the same five-point scale. The results are shown in Table A.4.30. We see that, as a whole, participants tend to agree on having had good collaboration. We see that 'I had lively and stimulating discussions with other participants in the pilot' has relatively the lowest score, but still one third agree (completely).

Five of the 37 participants (13,5%) agree on all 5 statements and another 4 participants have an average score higher than 'I agree'. Three persons agree less than 'I disagree'. Among them the two persons with grave technical problems.

	<b>I agree completely</b>	<b>I agree</b>	<b>I neither agree nor disagree</b>	<b>I disagree</b>	<b>I disagree completely</b>	<b>Rating Average</b>	<b>Response Count</b>
* I had lively and stimulating discussions with other participants in the pilot.	2.8% (1)	30.6% (11)	<b>41.7% (15)</b>	22.2% (8)	2.8% (1)	3.08	36
* I learned a lot from other participants in the pilots.	13.5% (5)	<b>29.7% (11)</b>	24.3% (9)	21.6% (8)	10.8% (4)	3.14	37
* Other participants in the pilot were able to answer my questions.	5.4% (2)	<b>43.2% (16)</b>	24.3% (9)	24.3% (9)	2.7% (1)	3.24	37
* I provided useful help to other participants in the pilot.	5.4% (2)	<b>40.5% (15)</b>	29.7% (11)	21.6% (8)	2.7% (1)	3.24	37
* I had feedback that this help to other participants in the pilot was useful.	5.4% (2)	<b>43.2% (16)</b>	29.7% (11)	16.2% (6)	5.4% (2)	3.27	37

**Table A.4.30 Opinion on collaborative aspects during the course (FMM02-UNESCO-IHE)**

#### *Use of Supportive Learning Tools environment*

In the second part of the questionnaire the participants were asked about the use and appreciation of the several elements of the online environment.

#### *Self-assessment with the PDP*

The environment offers the possibility for self-assessment within the PDP: people can estimate their own proficiency level and assign it a level ranging between 0 and 8.

The first three questions are about estimating one's own proficiency level within the PDP.

First it was asked for how many competences the self-assessment was used (n=37). 21,6% has not used it, 10,8% for a minority of competences, 21,6% for half of their competences, 27% for most of them, and 18,9% for all competences. The non-usage can be explained by the fact that it was not obligatory for participants to use this self assessment rating tool.

On the question how difficult it was to estimate one's proficiency level (n=37) a bit more than one third say it was difficult, a bit more than one third is neutral, and 30% think it was easy.

	Very difficult	Difficult	Not difficult, not easy	Easy	Very easy	Rating Average	Response Count
To determine my own level of competence with each competence was:	5.4% (2)	29.7% (11)	<b>35.1% (13)</b>	24.3% (9)	5.4% (2)	2.95	37

**Table A.4.31 How easy was it for you to determine your own level with each competence (FMM02-UNESCO-IHE)**

The next question was on labels attached to levels of competence. When pointing at a level of a competence, a label shows up that gives information about the level (such as 'Level 4: a) factual and theoretical knowledge in broad contexts within a field of work or study; b) a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study'). Table A.3.32 shows the results. About half is neutral on these labels, 30% think it was difficult.

	Very difficult	Difficult	Not difficult nor easy	Easy	Very easy	I did not notice the labels - N/A	Rating Average	Response Count
How easy was it for you to understand the labels attached to each level?	2.7% (1)	27.0% (10)	<b>48.6% (18)</b>	16.2% (6)	2.7% (1)	2.7% (1)	2.89	37

**Table A.4.32 Understanding the levels of the competences in the self-assessment (FMM02-UNESCO-IHE)**

Then the participants were asked about their preference when choosing sequence of activities. UNESCO-IHE provided participants with an activity plan (the plan and sequence of learning activities), but they also had the freedom to performed the activities. In Table A.4.33 we see distributed preferences here with somewhat more preference for being guided by the expert.

N=37	%	#
1. I prefer to be given some freedom in choosing between learning activities. So, e.g. I can choose to work on 3.2 or 4.1 whenever I like, instead of 'first 3.2 and later 4.1'.	29.7%	11
2. I want to be able to define as much as possible my own learning path. The lecture should only inform me if certain learning activities have specific requirements (e.g. you cannot do 4.3 before you finished 3.2)	27.0%	10
3. I prefer the lecturer to define the whole sequence of learning activities. I just follow his/her learning path	43.2%	16

**Table A.4.33 Preferences regarding the freedom when choosing the sequences of activities (FMM02-UNESCO-IHE)**



### Marking activities as completed

The PDP allows learners to mark activities as completed. Activities that are marked as completed are removed from the list of activities that still need to be completed and they are added to the history. We asked first whether the participants used this possibility and, if they did not, what was the reason of not using it.

	%	#
Yes	51.4%	19
No, because I didn't notice that the possibility was available	2.7%	1
No: I noticed that this possibility was there, but I didn't know how to use it	0.0%	0
No, because I didn't consider marking activities as complete as helpful	18.9%	7
No, for another reason	27.0%	10
Use marking activities as completed		37

**Table A.4.34 Possibility to mark activities as complete (FMM02-UNESCO-IHE)**

Two persons who have used this possibility do comment:

- However, I have my doubts to mark activities. I just mark an activity when it was possible to choose out of several options. In other case I just blog my learning process.
- However, there was technical errors after entering my blogs and uploading them, the platform did not recognize it, I had to enter and mark complete maybe 4 times each section before it was recognized and removed from the list. There were still some modules that would not remove themselves from the list event though I have completed all the assignments and blog entries. I found it most frustrating. I had to keep a word document to copy and paste my blogs, as when clicking OK it deleted them in many instances. I hope I am not considered incomplete from the course by missing blogs.

Ten persons give a reason why they did not use it for another reason (as asked). The first two persons are the ones with technical problems. The others mostly refer to the point that they could not return, or were afraid they couldn't.

- I couldn't access the most of the activities
- Because I was unable to do the pilot due to technical problems on my PC and also away from areas where internet connectivity was very poor.
- Because I wanted to still have asses to the activity in case there is a material I need to download.
- Because after marking I couldn't use that activity any more
- So that I could return to the activity later for further learning (reference) purpose.
- The coordinator suggested to do not use it
- To be able to refer to the activities later
- In case I have reason to refer back on some competences.
- I have partly used this option because when marking as completed you can no longer have access to the learning material (especially the on line). Maybe it could be better to be able to mark as completed and still have access
- I wanted always to have the material available so I could check and review the information directly from the web site.

Table A.4.35 shows the results related to when participants marked their activities as completed. Besides Table A.4.36 compiles the results of how they used the possibility to mark activities as completed. One person ticks two possibilities, and another person ticks three.

N=37	#	%
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When I had performed the activity, regardless of how well I performed it	4	10,8
When I had performed the activity and thought that I mastered it well enough	16	43,2
When I had the feeling from the description of the activity that I mastered it, and needn't perform the activity	1	2,7
I did not use the button	17	45,9

**Table A.4.35 When participants marked their activities as completed. (FMM02-UNESCO-IHE)**

N=37	#	%
I used it to see how many activities I already mastered through the 'Show history' button	7	18,9
I used it to see how many activities I still had to perform through the 'Show plan' button	7	18,9
I used it to see how far I had progressed by comparing the number of activities performed to the number of activities I still had to perform	9	24,3
<b>I did not use the button</b>	<b>17</b>	<b>45,9</b>

**Table A.4.36 How participants used the possibility to mark activities as completed (FMM02-UNESCO-IHE)**

Table A.4.37 reports the effect participants experience of the button to 'mark activities as complete' on their learning. Those using the button stated that this helped them to progress more efficiently or enjoyed having this type of overview.

N=37	%	#
I did not use the button	43.2%	16
I used the button and I progressed more efficiently	13.5%	5
I used the button and I enjoyed having this type of overview	37.8%	14
A different effect, namely	8.1%	3

**Table A.4.37 Effect of the button to 'mark activities as complete' on their learning (FMM02-UNESCO-IHE)**

The three persons who ticked 'a different effect' say:

- I used once by accident and then no more because that activity with this action is gone.
- I used the button but it didn't work in many cases the first times even though I had created a blog.
- I did not use this button because I thought that it make the course material not available after that.

There is one other person who adds after choosing the second option:

- The true is that I did not use this options, because I did want to have every moment the online lecture to listen the presentations in every moment o the course

About half of the persons think that marking activities is (very) useful according to Table A.4.38.

	++	+	+/-	-	--
The possibility to mark activities as complete is	8.1% (3)	43.2% (16)	27.0% (10)	8.1% (3)	13.5% (5)

**Table A.4.38 Rating the possibility to mark activities as complete (FMM02-UNESCO-IHE)**

With regards to the creation of private blog entries in PDP, those doing so say that it helps them to reflect on their own progress (see Table A.4.39).

Did you create and use private (non-shared) entries in PDP? For what purpose?	%	#
I didn't create and use private blog entries	70.3%	26
I used private blog entries to reflect on my progress	21.6%	8
I used private blog entries for other reasons, namely.....	8.1%	3

**Table A.4.39 Answers to the question of creating and using private (non-shared) entries in the PDP (blogging) (FMM02-UNESCO-IHE)**

The three persons who ticked ‘other reasons’ say:

- to express ideas, experiences and concepts about develop activities
- to summarise my understanding of the competence
- if i forgot to tick the possibility to share with others:-)

There is one other person who adds after choosing the second option:

- In the beginning to specify my learning objectives.

### *Communication with other partners*

27. Did you communicate with other participants in the pilots? In what ways?		
	%	#
I used (some of) these tools to communicate with other participants	64.9%	24
I didn't communicate with these tools with other participants	35.1%	13

Although some persons say they didn't communicate they continue answering questions.

If you did communicate with other participants, what tool did you use for this and for what reason? Please tick all that apply.				
	Shared Blog in PDP	Message Board in LifeRay	LearnWeb	#
I worked together on an assignment	38.9% (7)	44.4% (8)	22.2% (4)	18
I sought help on course content	41.7% (10)	54.2% (13)	16.7% (4)	24
I provided help on course content to others	23.8% (5)	66.7% (14)	14.3% (3)	21
I discussed course content	50.0% (10)	45.0% (9)	20.0% (4)	20
I discussed the competences that I had to master and the progress	66.7% (12)	22.2% (4)	22.2% (4)	18
I shared knowledge and learning resources	61.1% (11)	27.8% (5)	22.2% (4)	18
I sought help on course organisation	37.5% (6)	37.5% (6)	25.0% (4)	16
I provided help on course organisation	44.4% (4)	11.1% (1)	44.4% (4)	9
others				
I made appointments, e.g. for chat meetings	40.0% (4)	20.0% (2)	40.0% (4)	10
I made organisational decisions	40.0% (4)	20.0% (2)	40.0% (4)	10
I socialized with them	33.3% (4)	25.0% (3)	41.7% (5)	12
Other, namely ...				5

**Table A.4.40 Communication with other participants**

34 of the 37 participants indicate that they used one or more tools for one or more activities.

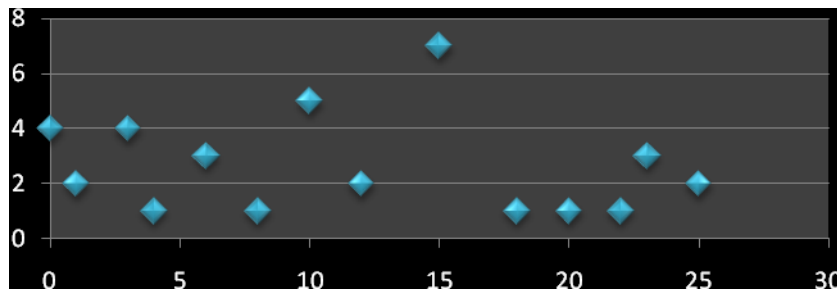
Of the five persons who say ‘other’, three have not ticked anything for tools/activities and they comment:

- I did not participate
- I did not communicate with others on the platform.
- I share some material directly from my mail account to some participants who could download the material, etc.

The other two both say that they used e-mail in addition to ample usage of Learnweb.

### *Blogs*

The 37 participants differed widely in the number of times that they created a new shared blog entry or updated an existing one. The average is almost 11 blogs.



While 4 participants did not create or update any entries, seven created or updated 15 blogs, and two participants created and updated 25 blogs [post-test].

Most participants (83,8%) read blogs from others. 16,2% of the participants did not read blogs from others; 5,4% because there were (almost) no blogs from others, 10,8% indicated there were blogs from others but they didn't read them. 24,3% read (almost) all blogs from others and 59,5% read only those blogs from others that seemed relevant to them.

73% of the 37 participants also rated the use of the blog as (very) useful, 18 % as neutral, and 8 % as useless.

### *The Forum in Liferay*

The forum is not used by 46% of the participants.

32. For which purposes did you use the Forum in LifeRay?		
N=37	%	#
I didn't use the forum	45.9%	17
I used it to seek help on the PDP	35.1%	13
I used it to be informed about the new activities	13.5%	5
I think it will be useful in the future when I work from home and I need some advice/help	5.4%	2
I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities	5.4%	2
Other purposes	8.1%	3

**Table A.4.41 Liferay forum**

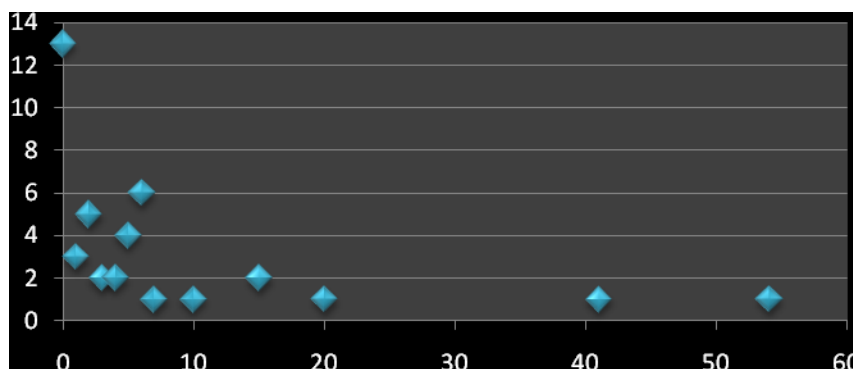
The other purposes are:

- for know troubles of another participants and try help For ask help in my learning problems
- To get helps mainly about technical problems and assignments
- searched for help regarding problems with the assignments and the modelling tools

One other person adds:

- I also followed discussions about problems i had while performing assignments and they were really helpfull

The 37 participants differed in the number of times that they created a new Topic on the Forum or replied to an existing one from someone else in Liferay. Thirteen say they never did anything. That is a bit less than the 17 who said they did not use the forum in the previous question. The average is almost 6 times. The maximum is 54 times.



Did you read Forum Topics and threads from others?

N=37	%	#
No, there were (almost) no posts from others.	5.4%	2
No, there were posts from others, but I didn't read them	18.9%	7
I read (almost) all posts from others	24.3%	9
I read only those posts from others that seemed relevant to me.	51.4%	19

**Table A.4.42 Reading Liferay forums**

The nine persons who say NO on the question of reading the Forum is again less than the 17 who said not to have used the Forum.

What is your overall rating of the Forum facility in LifeRay?

N=37	++	+	+/-	-	--
My overall rating:	32.4% (12)	27.0% (10)	35.1% (13)	2.7% (1)	2.7% (1)

**Table A.4.43 Use of forums**

The majority of almost 60% think that the Forum is (very) useful. Again here those who did not use the Forum have cast their votes.

### *Participants' profiles*

For which of the following purposes did you read the participants' profiles? Please tick all that apply.

N=37	%	#
To get an impression of who the people in this course are	67.6%	25
To look for specific expertise	21.6%	8
Before I contacted a specific person	2.7%	1
Other	21.6%	8

**Table A.4.44 Reading participants' profile (I)**

Of the 8 persons who choose for 'Other' two give a genuine reason:

- to know where are they from
- I didn't check the profiles deeply, I gave an overview of all the participants profiles.

One person says: "I was unable to see participants' profiles"

The five other persons say that they did not read it, or did not use it, or did not participate.

37. How many of the participants' profiles in LifeRay did you read?

N=37	None	Few	Half	Most	All
From the participants' profiles in LifeRay I read:	27.0% (10)	70.3% (26)	0.0% (0)	2.7% (1)	0.0% (0)

**Table A.4.45 Reading participants' profile (II)**

### *LearnWeb*

For what purpose did you use LearnWeb? Please tick all that apply:		
N=37	%	#
To find additional resources for working on my competences	45.9%	17
To find other resources that would be useful for me	35.1%	13
To find resources that would be useful to someone else	8.1%	3
Other purpose	21.6%	8

**Table A.4.46 Use of LearnWeb**

All 8 persons who choose for ‘Other’ say simply that they did not use it.

The question “How often did you add or rate a knowledge resource in LearnWeb?” gives many ‘none’s’: 24 persons indicate to have never done that. 6 say 1 time, another 4 say 2 times, and there is one person with 3 times, and one with 5 times. The average of 1,22 for this question is heavily influenced by the person who indicates that he has added or rated a knowledge resource in Learnweb 23 times.

Then we asked the participants to rate LearnWeb on three dimensions: to search for new resources, to share resources, and to rate and evaluate resources. All participants rate LearnWeb, also the 8 persons who indicated that they have never used it. So *we present the tables two times*, first with all responses and then without the 8 responses of the ones who did not use LearnWeb.

What is your rating of LearnWeb in order to <i>search</i> new resources?					
N=37	++	+	+/-	-	--
My overall rating:	5.4% (2)	40.5% (15)	43.2% (16)	8.1% (3)	2.7% (1)
What is your rating of LearnWeb in order to <i>search</i> new resources?					
N=29	++	+	+/-	-	--
My overall rating:	6,9% (2)	48,3% (14)	41,4% (12)	3,4% (1)	0,0% (0)
What is your rating of LearnWeb in order to <i>share</i> resources with your classmate/workmate?					
N=37	++	+	+/-	-	--
My overall rating:	8.1% (3)	43.2% (16)	40.5% (15)	5.4% (2)	2.7% (1)
What is your rating of LearnWeb in order to <i>share</i> resources with your classmate/workmate?					
N=29	++	+	+/-	-	--
My overall rating:	10,3% (3)	51,7% (15)	37,9% (11)	0,0%	0,0%
What is your rating of LearnWeb as a tool to <i>rate and evaluate</i> resources?					
N=37	++	+	+/-	-	--
My overall rating:	10.8% (4)	43.2% (16)	35.1% (13)	8.1% (3)	2.7% (1)
What is your rating of LearnWeb as a tool to <i>rate and evaluate</i> resources?					
N=29	++	+	+/-	-	--
My overall rating:	10.3% (3)	51,7% (15)	34,5% (10)	3,4% (1)	0,0%

**Table A.4.47 Ratings on LearnWeb**

We see that the different ratings of LearnWeb increase when we leave out the non-users. For the three dimensions we see respectively 55,2%, 62,1% and 62,1% which means (very) useful.

But this doesn’t mean that partners didn’t have suggestions. To the question ‘What would you suggest to improve in LearnWeb?’ 17 persons add something.

Seven of the eight persons who did not use LearnWeb add a comment or a suggestion.

- I really forgot of this resource
- I suggest that as an option, learning materials be sent as attachments through e-mails.
- Well I really didn’t have time for use it. But if it’s a place where I can find lectures related to the course, it must be very useful.

- Explain better the use of LearnWeb or suggests the students to use it for assignments. I checked it at the beginning and I didn't find anything and then I just didn't think about it anymore
- I could not open it
- Unfortunately I did not have enough time privilege on my hands to use the learn web.
- I did not use it.

The other persons say:

- In general to communication resources I suggest a more integrated way of presentation. I mean a unique home page with conventional menu for selecting actions in specific topics, for example being possible to select communication option and then appear three options: blogs, LearnWeb and forum.
- The LearnWeb can improve with interactive games that follow the course during the learning process.
- LifeRay should have more friendlier way for forums

Three persons say 'Nothing' which may mean that it's OK. Another person says 'No suggestion'. And two say 'It is OK'. Yet another person says 'I haven't used it!'

Did you use means other means for communication with other participants? (Please tick all that apply)		
N=37	%	#
No	35.1%	13
Email	56.8%	21
Chat	13.5%	5
Skype	0.0%	0
Telephone	5.4%	2
Video-conferencing	0.0%	0
Face-to-face meetings	8.1%	3
Other	0.0%	0

**Table A.4.48 Other means of communicating with participants**

A bit more than one-third has not used other means for communication. More than half of the participants have used e-mail. There is one person who uses chat in addition, and there is one person who ticks e-mail, chat, telephone and face-to-face meetings



## Content

Please evaluate the pilot competencies with respect to the following aspects:						
	Very good	Good	Fair	Poor	I don't know	#
Competencies contents in relation to course objectives	43.2% (16)	48.6% (18)	5.4% (2)	0.0% (0)	2.7% (1)	37
Number of topics in relation to course objective	40.5% (15)	48.6% (18)	5.4% (2)	0.0% (0)	5.4% (2)	37
Number of topics in relation to course duration	21.6% (8)	54.1% (20)	13.5% (5)	5.4% (2)	5.4% (2)	37

**Table A.4.49 Pilot competences**

We see a high appreciation. Only the number of topics in relation to duration is evaluated less. From the data it is not clear whether participants mean too few or too much topics. From the individual comments, though, it becomes clear that for some participants the course was tough and full loaded, which made it difficult to combine with other obligations.

Please asses each different tutor(s) and how they presented their material:						
	Very good	Good	Fair	Poor	I don't know	#
Prof. R.K. Price	45.9% (17)	48.6% (18)	2.7% (1)	0.0% (0)	2.7% (1)	37
Prof. D. Solomatine	22.2% (8)	47.2% (17)	11.1% (4)	5.6% (2)	13.9% (5)	36
Dr. A. Jonoski	45.9% (17)	45.9% (17)	0.0% (0)	0.0% (0)	8.1% (3)	37
Dr. I. Popescu	43.2% (16)	40.5% (15)	10.8% (4)	0.0% (0)	5.4% (2)	37
Ir. S.J. van Andel	24.3% (9)	59.5% (22)	5.4% (2)	0.0% (0)	10.8% (4)	37
Dr. Z. Vojinovic	21.6% (8)	56.8% (21)	5.4% (2)	0.0% (0)	16.2% (6)	37
Dr. A. van Griensven	24.3% (9)	59.5% (22)	5.4% (2)	0.0% (0)	10.8% (4)	37

**Table A.4.50 Rating tutors**

Please assess the support and coordination of the pilot:						
	Very good	Good	Fair	Poor	Don't know	#
Carel Keuls	6.1% (2)	39.4% (13)	9.1% (3)	0.0% (0)	45.5% (15)	33
Wim Glas	6.1% (2)	36.4% (12)	12.1% (4)	0.0% (0)	45.5% (15)	33
Ioana Popescu	48.6% (18)	32.4% (12)	16.2% (6)	0.0% (0)	2.7% (1)	37

**Table A.4.51 Support and coordination**

Please asses how the pilot and material was presented:						
	Very good	Good	Fair	Poor	Don't know	#
Announcement of the beginning of the course	56.8% (21)	37.8% (14)	0.0% (0)	2.7% (1)	2.7% (1)	37
Material uploading and clarity	25.0% (9)	41.7% (15)	13.9% (5)	16.7% (6)	2.8% (1)	36
Help during pilot	24.3% (9)	35.1% (13)	32.4% (12)	5.4% (2)	2.7% (1)	37

**Table A.4.52 Materials**

## Comments on how to improve the pilot

25 persons make a comment on how we could make this course better. The comments relate to proposed improvements for pilot material, technical improvements and interaction and teacher responsiveness.

- In competence 7.2 , the material should be more explicit In Neural machine, the material is incomplete in connection with the WEKA

- I couldn't get access to some of the lectures, and the time allocated to the course was not enough, as working people might not have enough time to do the course, especially when participants get to go work in the field where there is no internet connection.
- I needed faster answers to be able to keep going with my studies in some cases. I guess is hard and a lot of work to be able to answer to all the students by mail. I guess is a good idea to have a kind of chat version so we can ask and reply online to be able to make all the questions we want to do (mail reply takes longer and maybe the persons don't really understand each other). I think that a chat version to be able to ask, it would be perfect!!!! 2. I think is good if all the ppt come with audio. 3. I think that could be good if we could keep the audio (in a CD or something like that), to review the presentation material in the future.
- 1) It could be good to integrate several activities, with related topics. 2) To have a more direct contact with teachers with periodic appointments in forums, to do online discussion and questions. 3) An specific competence about risk estimation would be nice
- including the trial version of the programs or online use
- overall the course was very well presented
- Perhaps because some professors where away on vacation it was difficult to obtain help for the assignments. There was little participation and answers by professors in the forum.
- I would it could be more communication among students and experts
- the download site for some of the software were not accessible
- there were technical problems for some of the content that may not have been a problem with my computer. There were 2 presentations with no sound. I posted this and got no response. i could not complete that assignment and had to do 7.1 instead. I also would have liked the ability to save the presentation, to fit into a busy schedule would have been useful to watch on MP 4 or save and view/listen without constant internet connection. A very good course. I would like to get feed back on the assignments not submitted as I had no access to mike Urban, but hopefully will get it soon and do the assignment in my own time. If I can get the answers or feed back to that I would appreciate it along with the others.
- That course materials could be sent as attachment to e-mails to allow participants to start and have enough time to upgrade their PCs to take care of any new subject that will require some higher versions of software or hardware.
- Time allocated for the whole pilot is not enough at all. Since we had to attend other duties at our work place. If the lectures could have been dow loaded and listen at home it would have been ease the matter. Participants from developing countries do not have internet access to their homes. Instead of blogs it should have been forums which the participant should contribute.
- The lecture must be actualized to this course. The instructions and exercises for modellings software must be clearer. Don't forget the quickly help we have is the lecture (notes) so, if we can not read in a clear way the instruction for follow the examples or exercises we lost too much time trying of understand or investigating.
- The pilot is very good & the process is also very good but due to our PC's Internet speed, we face some problems some time Otherwise every thing is very good.
- It should be controlled if no data are missing for downloading for the exercises. In the PDP and the plan which was sent before starting were different things to do. In the Assignment-instruction were different orders in comparison what really should be done. Firefox was the recommended browser but didn't work with many lectures.
- I think the exchange between the students should be improved, giving e.g. topics of discussion or sharing the assignment after the delivery. More support from lecturers should also be provided. We post in the forum questions that never got answer. (e.g. DDM assignment had 2 options and more then 1 students asked if we had to choose one of them or they were both options. Nobody answered.)
- web access was difficult, loading the files took a lot of time. The volume in some cases was too low.
- I spent 5 of the 8 course weeks on work assignments in areas with weak internet connectivity in Mozambique and Sierra Leone. Most of the course lectures could not be downloaded, or only with great difficulties. From the Developing countries point of view I would consider it far better to provide training facilities which require less sophisticated internet connections. A written lecture, which can be downloaded by everyone can be much better than a video lecture which fails ever so often due to server problems. I did not finish the course due to time constraints and technical problems with operating system and modelling software. It would be useful to investigate and documentate known bugs e.g. Vista and HEC - HMS etc. Most of my problems with the course were due to technical problems, not related to course contents, supervision or teaching material. I will still use the materials, but not within the course.

- I think this course need more time.
- The only problem I had was the download of the software MIKE11 and MOUSE, which did not allow me to do some of the activities. I know it's an external issue but it should be paid attention to it in FMM's next edition. Good luck to everyone and it was a pleasure to follow this course!
- All is Ok.
- I really appreciated the course, even though initial problems with browser hindered me from full utilization because I was about three weeks late but on the whole i really appreciated the course, a job well done.
- MIKE 11 and MOUSE software could be sent to participants on CD due to their sizes which make them difficult to download.
- I was not able to download the software and there was not enough responsibility taken by the course coordinator despite regular emails.
- Addition of flood mapping materials, flood hazard risk mapping, flood forecasting mapping could lead the course to the best output.

#### **A.4.5 Comparison with the previous FMM pilot and discussion**

The main difference between the second and the first pilot implementation of the FMM, is that in the first pilot, the participants to the course were guided in their plan of following the competence development, while in the second case the plan was provided and the participants were asked to decide and select their own path of learning. From the final evaluation, it seems that the majority of the participants prefer to be guided by an expert rather than to decide for him/her-self the learning part. This might be due to the specialised topic on offer, which needs a lot of expertise and experience.

#### **A.4.6 Data collection instruments**

The final versions of the pre- and post-tests are provided in this section.

##### *Pre-test Questionnaire FMM02 (N = 63)*

#### **TenCompetence-FMM2 Course – Pre-test Questionnaire**

##### **1. Introduction**

Dear participant in the Flood Modelling for Management Course Pilot (FMM),

Thank you for participating in this Pilot. The Flood Modelling for Management On Line Course is a Pilot project. It is part of the TenCompetence project, an European Research Project, which aims to establish an infrastructure for life-long learning and competence development. As the infrastructure is under development, it is very important for us to evaluate how the infrastructure is used in this Pilot. As part of the evaluation, we have set-up this questionnaire. Your participation in this evaluation is a compulsory part of the course and is highly appreciated, as feedback from the pilot participants is our main source for improving the infrastructure. We therefore ask you to fill in the full questionnaire. We like to stress that by returning this questionnaire, you only grant the researchers permission to use your answers for the evaluation of the pilot. The data you provide will be made completely anonymous before data analysis. They will be used by the evaluation researchers only and not be distributed to anyone else. Thank you for your participation!

The email link that was sent to you is very personal. When using the link it enables you to go back to previous pages in the survey and update existing responses until the survey is finished or until you have fully completed the survey. After the survey is finished, you will not be able to re-enter the survey.

The questionnaire contains 22 short questions in total; Please answer all the questions.

Thank you for your attention and good luck!

The DSS-Course Research Team

## 2. Background Information

\* 1. What's your age?

\* 2. What's your gender?

☐ Female

☐ Male

\* 3. Country in which you live in?

\* 4. Highest educational degree that you earn:

☐ Bachelor's degree

☐ University master's degree

☐ PhD

\* 5. Profession: I am a

\* 6. Current job function:

\* 7. Number of years of experience in the professional field of Flood Modelling for Management:

### 3. Competence Development

**\* 8. How would you describe your current proficiency level with respect to Flood Modelling for Management?**

- ☐ Novice
- ☐ Beginner
- ☐ Intermediate
- ☐ Advanced
- ☐ Expert

**\* 9. How important is it for you to acquire the following types of competences?**

	Completely unimportant	Unimportant	Not unimportant nor important	Important	Very important
* Cognitive knowledge (to know what Flood Modelling is about)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Functional skills (to know how to do Flood Modelling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Social skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to behave according to the rules and values of the profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to guide my future use by reflection on current practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to find creative solutions for problems related to this competence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 10. How often have you followed a training or course which was competence-based?**

- ☐ Never
- ☐ Once
- ☐ Two or three times
- ☐ Four or more times
- ☐ I don't know what competence-based training is

#### 4. Experience with web-based learning

**\* 11. How would you describe your experience with distance learning?**

The total number of courses / modules etc. that I have followed through distance learning is:

**\* 12. How often have you participated / do you participate in online (webbased) discussion forums?**

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

**\* 13. How often have you participated / do you participate in online chats?**

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

**\* 14. How often have you used / do you use search functions for finding information, such as google or database search?**

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

**\* 15. How often have you used / do you use ratings by others for selecting information for your own use?**

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

**\* 16. How often have you shared / do you share data and files with other people in online communities for leisure (free time) purposes?**

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

**\* 17. How often have you shared / do you share sharing data and files with other people in online communities for professional purposes?**

☐ Never ☐ Occasionally ☐ Sometimes ☐ Often ☐ Very often

**18. Which of the following reasons for following the Flood Modelling Management pilot apply to your situation?**

Tick all of the answers listed below that apply to your situation.

- ☐ I want to keep up to date within my existing function or job
- ☐ I want to study for a new function or job or improve my current job level
- ☐ I want to reflect on my current competences to look which functions and jobs are within my reach or to help me define new learning goals
- ☐ I want to improve my proficiency level of a specific competence
- ☐ I want some support on a non-trivial learning problem
- ☐ I want to explore the possibilities in a new field (learning network) to help define new learning goals

**\* 19. Which of the following describe(s) the involvement of your employer?**  
**Tick all of the answers listed below that apply to your situation**

- ☐ My employer is not involved in my following this course
- ☐ My employer would have paid the fee for this course
- ☐ My employer has obliged me to follow this course
- ☐ My employer has allocated part of my working hours for following this course
- ☐ Following this course successfully is necessary for me to keep my current job function
- ☐ Following this course successfully is necessary for me to obtain a new job function at my current employer.
- ☐ I follow this course as part of a trajectory for people who are unemployed or who are in danger of becoming unemployed.

**\* 20. The course will provide you with a diversity of web-based learning resources. Your learning path, for this course, is not established throughout the course, you will have to decide it for yourself. However, for other courses, there are several ways in which you could learn (a suggested learning path to follow or the freedom to follow your own learning path). What would be, in general, your option for the most supportive learning:**

- ☐ Support me with learning resources only
- ☐ Support me with learning resources + an outlined path + the possibility to choose my own learning path
- ☐ Support me with learning resources + a path that I need to follow

## 5. Facilities

**\* 21. The computer you use most for accessing the course is best described as**

- ☐ New (less than one year old)
- ☐ Neither new nor old
- ☐ Very old (more than a few years old)

**\* 22. The Internet connection you use most for accessing the course can best be described as**

- ☐ Slow
- ☐ Medium
- ☐ Fast
- ☐ Very fast



## Post-test Questionnaire FMM02 (N = 39)

### TenCompetence-FMM2 Course – Post-test Questionnaire

#### 1. Introduction

Dear participant in the Flood Modelling for Management Course (FMM02),

Thank you for participating in this Pilot Course from UNESCO-IHE within the TenCompetence project. We have set-up this questionnaire for evaluating the used digital infrastructure, as well as the course organisation. Your participation in this evaluation is obligatory but also highly appreciated, as feedback from the pilot participants is our main source for improving the infrastructure and the course. We would therefore like to ask you to fill in this questionnaire as soon as possible. We like to stress that by returning this questionnaire, you only grant the researchers permission to use your answers for the evaluation of the pilot. The data you provide will be made completely anonymous before data analysis. They will be used by the evaluation researchers only and not be distributed to anyone else. Thank you for your participation!

In the questionnaire, we will start by asking a few questions on your overall appreciation, and after that we will zoom in on the separate elements of the Personal Development Planner, which was used to follow the course. The questionnaire contains 46 questions in total; answering the questions will take about 20-25 minutes. Please consider some patience, sometimes it takes a few seconds for a page to load before your clicking on an answer is captured!

Thank you for your attention and good luck!

The FMM-Course Research Team

#### 2. Background information

\* 1. What's your age?

\* 2. Your Username in the FMM course:

\* 3. What's your gender?

☐ Female

☐ Male

\* 4. How many hours did you spend on the FMM course ? (best guess)

Total number of hours:

\* 5. Was your learning process hindered by technical problems?

	Not at all	Hardly	Moderately	Largely	Completely
I experienced the following level of hindrance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 3. Overall appreciation

This part of the questionnaire is aimed at your overall appreciation of your learning experience.

#### Competence development

**\* 6. How much have you learned with respect to the following types of competences?**

	(Almost) nothing	Little	Not little, not much	Much	Very much
* Cognitive knowledge (to know what Flood Modelling is about)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Functional skills (to know how to do Flood Modelling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Social skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to behave according to the rules and values of the profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to guide my future use of flood modelling tools by reflection on current practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Knowing how to find creative solutions for problems related to this competence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 7. What is your opinion on this way of learning?**

	I agree completely	I agree	I neither agree nor disagree	I disagree	I disagree completely
I enjoyed this way of learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 8. What is your opinion on further development of this competence?**

	Certainly	Yes	Perhaps, perhaps not	No	Certainly not
I wish to continue developing this competence / these competencies further	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### Impact

**\* 9. When compared to the beginning of the pilot, did you already experience benefits from participating in the pilot?**

	(Almost) nothing	Little	Not little, not much	Much	Very much
* I experienced as benefits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**10. I have experienced benefits in the following areas:**

#### Appreciation of learning resources

##### \* 11. What is your opinion on the easiness or difficulty of the learning resources?

	Very difficult	Difficult	Not difficult, nor easy	Easy	Very easy
The learning resources were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

##### \* 12. What is your opinion on the compellingness of the learning resources?

	Very interesting	Interesting	Not interesting, nor uninteresting	Uninteresting	Very uninteresting
The learning resources were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

##### \* 13. What is your opinion on the usefulness of the learning resources?

	Very useful	Useful	Not useful, nor useless	Useless	Very useless
The learning resources were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

##### \* 14. Did the learning resources match your learning needs?

	Not at all	Hardly	Moderately	Largely	Completely
The learning resources matched my learning needs:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### Appreciation of your control on the learning path

##### \* 15. What is your opinion on the level of control you experienced over your learning process?

	I agree completely	I agree	I neither agree nor disagree	I disagree	I disagree completely
* In the beginning, I quickly got an overview of the competences involved and my current proficiency level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had a good overview on what I had done and what I had to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had insight into how my learning progressed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had the feeling that I learned exactly what I wanted to learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had the feeling that I could plan my own learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I felt in control of my own learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

##### \* 16. What is your opinion on collaborative aspects during the course?

	I agree completely	I agree	I neither agree nor disagree	I disagree	I disagree completely
* I had lively and stimulating discussions with other participants in the pilot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I learned a lot from other participants in the pilots.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Other participants in the pilot were able to answer my questions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I provided useful help to other participants in the pilot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I had feedback that this help to other participants in the pilot was useful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### 4. Use of Supportive Learning Tools environment (1)

In the second part of the questionnaire we ask you about your use and appreciation of the several elements of the virtual learning environment (LifeRay, PDP, LearnWeb).

Self-assessment with PDP

- \* 17. For how many of the required competences that your personal development plans contained did you fill in your competence level in the self-assessment?**

I used it for:

None	A minority	Half	Most	All
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* 18. In general, how easy was it for you to determine your own level with each competence?**

To determine my own level of competence with each competence was:

Very difficult	Difficult	Not difficult, not easy	Easy	Very easy
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* 19. When pointing at a level of a competence, a label shows up that gives information about the level (such as 'Level 4: a) factual and theoretical knowledge in broad contexts within a field of work or study; b) a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study').**

How easy was it for you to understand the labels attached to each level?

Very difficult	Difficult	Not difficult nor easy	Easy	Very easy	I did not notice the labels - N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- \* 20. In this FMM course UNESCO-IHE provided you with an activity plan (the plan and sequence of learning activities). Would you prefer to have more freedom yourself in choosing the sequence of activities?**

- ☐ I prefer to be given some freedom in choosing between learning activities. So, e.g. I can choose to work on 3.2 or 4.1 whenever I like, instead of 'first 3.2 and later 4.1'.
- ☐ I want to be able to define as much as possible my own learning path. The lecture should only inform me if certain learning activities have specific requirements (e.g. you cannot do 4.3 before you finished 3.2)
- ☐ I prefer the lecturer to define the whole sequence of learning activities. I just follow his/her learning path

Selecting activities from those still to be done

Marking activities as completed

The PDP allows learners to mark activities completed. Activities that are marked as completed are removed from the list of activities that you still need to complete

- \* 21. Did you make use of the possibility to mark activities as complete? If not, why not?**

- ☐ Yes
- ☐ No, because I didn't notice that the possibility was available
- ☐ No: I noticed that this possibility was there, but I didn't know how to use it
- ☐ No, because I didn't consider marking activities as complete as helpful
- ☐ No, for another reason

My other reason (please specify)

## 5. Use of Supportive Learning Tools environment (2)

### \* 22. When did you mark activities as complete? Please tick all that apply:

- ☐ When I had performed the activity, regardless of how well I performed it
- ☐ When I had performed the activity and thought that I mastered it well enough
- ☐ When I had the feeling from the description of the activity that I mastered it, and needn't perform the activity
- ☐ I did not use the button

### \* 23. How did you use the possibility to mark activities as completed? Please tick all that apply:

- ☐ I used it to see how many activities I already mastered through the 'Show history' button
- ☐ I used it to see how many activities I still had to perform through the 'Show plan' button
- ☐ I used it to see how far I had progressed by comparing the number of activities performed to the number of activities I still had to perform
- ☐ I did not use the button

### \* 24. What effect did the button to 'mark activities as complete' have on your learning? Please tick all that apply

- ☐ I did not use the button
- ☐ I used the button and I progressed more efficiently
- ☐ I used the button and I enjoyed having this type of overview
- ☐ A different effect, namely

The other effect was (please specify)

### \* 25. How would you rate the possibility to mark activities as complete?

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
The possibility to mark activities as complete is	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## 6. Use of Supportive Learning Tools environment (3)

### Private blog entries

### \* 26. Did you create and use private (non-shared) entries in PDP? For what purpose? (Please tick all that apply)

- ☐ I didn't create and use private blog entries
- ☐ I used private blog entries to reflect on my progress
- ☐ I used private blog entries for other reasons, namely.....

Namely (please specify) ....

### Learning activities and the use of knowledge sharing tools

The learning environment provided you with several tools to communicate with other participants: Shared Blog in PDP, the message Forum in LifeRay, LearnWeb.

### \* 27. Did you communicate with other participants in the pilots? In what ways? (Please tick all that apply)

- ☐ I used (some of) these tools to communicate with other participants
- ☐ I didn't communicate with these tools with other participants (please continue with Question 42)

- \* 28. If you did communicate with other participants, what tool did you use for this and for what reason?  
Please tick all that apply.**

	Shared Blog in PDP	Message Board in LifeRay	LearnWeb
I worked together on an assignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I sought help on course content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I provided help on course content to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I discussed course content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I discussed the competences that I had to master and the progress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I shared knowledge and learning resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I sought help on course organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I provided help on course organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I made appointments, e.g. for chat meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I made organisational decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I socialized with them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, namely ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Namely (please specify) <input type="text"/>			

Use of Shared Blog in PDP

- \* 29. How often did you create a new shared blog entry or update an existing blog entry?**

My estimated number of new shared blog entries or updates of existing blog entries is:

- \* 30. Did you read shared blogs from others?**

- ☐ No, there were (almost) no blogs from others.
- ☐ No, there were blogs from others, but I didn't read them
- ☐ I read (almost) all blogs from others
- ☐ I read only those blogs from others that seemed relevant to me.

- \* 31. What is your overall rating of the blog facility?**

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Use of the Discussion Forum in LifeRay

## \* 32. For which purposes did you use the Forum in LifeRay?

- ☐ I didn't use the forum
- ☐ I used it to seek help on the PDP
- ☐ I used it to be informed about the new activities
- ☐ I think it will be useful in the future when I work from home and I need some advice/help
- ☐ I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities
- ☐ Others purposes

In case of other purposes (please specify)

## \* 33. How often did you create a new Topic on the Forum or Reply to an existing Topic entry from someone else in LifeRay?

My estimated number of new shared blog entries or updates of existing blog entries is:

## \* 34. Did you read Forum Topics and threads from others?

- ☐ No, there were (almost) no posts from others.
- ☐ No, there were posts from others, but I didn't read them
- ☐ I read (almost) all posts from others
- ☐ I read only those posts from others that seemed relevant to me.

## \* 35. What is your overall rating of the Forum facility in LifeRay?

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Profiles in LifeRay

## \* 36. For which of the following purposes did you read the participants' profiles? Please tick all that apply.

- ☐ To get an impression of who the people in this course are
- ☐ To look for specific expertise
- ☐ Before I contacted a specific person
- ☐ Other

In case of other purposes (please specify)



**\* 37. How many of the participants' profiles in LifeRay did you read?**

	None	Few	Half	Most	All
From the participants' profiles in LifeRay I read:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Use of LearnWeb

**\* 38. For what purpose did you use LearnWeb? Please tick all that apply:**

- ☐ To find additional resources for working on my competences
- ☐ To find other resources that would be useful for me
- ☐ To find resources that would be useful to someone else.
- ☐ Other purpose

In case of other purposes (please specify)

**\* 39. How often did you add or rate a knowledge resource in LearnWeb?**

My added / rated number of knowledge resources is:

**\* 40. What is your rating of LearnWeb in order to *search* new resources?**

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 41. What is your rating of LearnWeb in order to *share* resources with your classmate/workmate?**

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 42. What is your rating of LearnWeb as a tool to *rate and evaluate* resources?**

	Very useful	Useful	Not useful nor not useless	Useless	Very useless
My overall rating:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**43. What would you suggest to improve in LearnWeb?**

**\* 44. Did you use means other means for communication with other participants? (Please tick all that apply)**

- ☐ No
- ☐ Email
- ☐ Chat
- ☐ Skype
- ☐ Telephone
- ☐ Video-conferencing
- ☐ Face-to-face meetings
- ☐ Other, namely ....

Namely (please specify)

## 7. Content evaluation of the DSS course

**\* 45. Please evaluate the course competencies with respect to the following aspects:**

	Very good	Good	Fair	Poor	I don't know
Competencies contents in relation to course objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of topics in relation to course objective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of topics in relation to course duration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 46. Please assess each different lecturer(s) and how they presented their material:**

	Very good	Good	Fair	Poor	I don't know
Prof. R.K. Price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prof. D. Solomatine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dr. A. Jonoski	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dr. I. Popescu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ir. S.J. van Andel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dr. Z. Vojinovic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dr. A. van Griensven	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 47. Please assess the support and coordination of the course:**

	Very good	Good	Fair	Poor	Don't know
Carel Keuls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wim Glas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ioana Popescu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**\* 48. Please assess how the course and material was presented:**

	Very good	Good	Fair	Poor	Don't know
Announcement of the beginning of the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Material uploading and clarity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help during course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**49. If you would like to make a comment, on how we could make this course better, please add it here:**

Thank you for your participation!

## Appendix 5: ICT Teacher Training pilot

### A.5.1 Description of the pilot

ICT Teacher Training pilot	
<p>Short description:</p> <p>This pilot tries to show how the TENCompetence framework and approach can be used to support competence development related to the innovative and complex training methodology, developed in the frame of the Leonardo project The Innovative Teacher project (I*Teach). An important issue is that while in the first pilots we train mostly ICT teachers, now we have included professional teachers from all subjects and levels, as well as to include teaching in schools.</p>	
Name and description of the Associate Partner	<p><b>ICT in Education Directorate – Ministry of Education and Sciences, Republic Bulgaria</b></p> <p>The ICT in Education Directorate at the Ministry of Education and Sciences develops strategies, programs and mechanisms for the implementation of ICT in Bulgarian Education system. It is responsible for the policy and specific measures linked with the implementation of ICT in Bulgarian schools. It is managing and coordinating the National strategy and Action plan for the implementation of ICT in Bulgarian schools. It is also responsible for the activities related to the development of electronic learning resources and their use in the national curriculum.</p> <p>As such the Ministry is organizing the training groups, and provides all the support related to teacher involvement in the pilots, as well as providing facilities for training on the job and pilot experiments in the schools, and all the financial and other support for the teachers and students.</p> <p><b>University of Sofia</b> is responsible for the organization of the main activities related to infrastructure setting, trainers preparation, logistics, training activities, help and support during the pilot experiments.</p> <p>UvA, OUNL and UPF: Pilot evaluators</p>
User groups	<p>The main target groups are professional teacher trainers and professional teachers who are willing to apply ICT in their subject domains. They participate in the training both individually or as a group of teachers from the same school. They want to achieve new competencies, to receive new qualification, and to form new communities of teachers willing to share knowledge resources, teaching plans and to share experiences in their own field. This training is in close cooperation with the Bulgarian Ministry of Education – ICT directorate, which not only supports the training, but also is an Associate partner of TENCompetence project, signing the corresponding Memorandum of Understanding. The Ministry of Education (MES) in Republic of Bulgaria is willing to disseminate and widespread new and very promising methodology for teacher training within the Republic of Bulgaria. In order to do so MES have to train as many teachers as possible to learn and apply this new methodology. In such a way MES wants to develop new competences for teachers in order to cope with a new information society</p>

	<p>and the need for fast changes in the education and schools.</p> <p>For the implementation of this strategic goal MES needs to identify groups of innovative teachers and to use them to form bigger communities of practice, which can be used to disseminate their know-how by sharing knowledge, skills and points of view in order to help other teachers to develop their insights and competences in the field of education.</p> <p>So, teachers are the main user group in the pilot, and they need to be trained in order to achieve these new competences, as described in the I*Teach methodology.</p> <p>Policy makers from MES are another important user group, and they are responsible for the organization of the pilot groups and providing all the relevant conditions for teachers to participate in pilot training.</p> <p>Experts in I*Teach methodology are the third main user group, as they are responsible for the training of teachers, planning of pilots, preparing the learning material, etc.</p> <p>Technology experts from Sofia University are the four main user group, responsible for the preparation of the right TENCompetence infrastructure to support the pilot trainings, as well as to support experts how best to utilize the existing infrastructure for their training.</p>
Setting	<p>The pilot will be organized in two modes. The first one is the same as with the Cycle 1 pilot: short one day introductory and final workshops, and one month self-study from the workplace. The second mode will be one week intensive training on the workplace, where pilot trainers will need to go to the respective schools and to spend one week for this intensive training. Furthermore all trainees will continue their self-study using the TENCompetence infrastructure, resulting in a final project. In both modes forming new communities will be essential for the success of the pilot training.</p>
Roles	<p>Requirements analyst – 2 persons, Architectural designer – 2 persons, Interface/interaction designer – 1 person, System manager (with help-desk functions) – 2 persons, Pilot designer and evaluator – 2 persons, Trainer – 10 persons, Learning technology expert – 2 persons, Business manager - 2 persons, Services provider – 4 persons, Learners – 300 persons. There is no overlapping of functions.</p>
Tooling	<p>The pilot was planned to use the following tools from the TENCompetence infrastructure: PCM, Web-based PDP, LearnWeb, Web-based Goal Orientation (Overview) Tool, Liferay. We plan to use the localised in Bulgarian language tools, and to try to integrate them using the Liferay portal. We will try to prepare the pilot in such way, that depending on the user needs and expectations, to implement all the user profiles and to see how well they can be complemented.</p> <p>The following use cases are relevant for this pilot:</p> <ol style="list-style-type: none"> <li>(1) Explore a Learning Network - for orientation what communities, competences, competence profiles are available - Goal Orientation Tool (GOT), PDP</li> <li>(2) Improve Proficiency Level - to improve proficiency level in some of the defined competences - PDP, PCM</li> <li>(3) Keep up to date - to know what are the relevant competences and what</li> </ol>

	<p>levels of competence achievement are possessed, as well as what are the relevant knowledge resources - PDP, LearnWeb</p> <p>(4) Reflect on competences - to propose teachers view on the competences and how the competence profiles for them can be improved - PCM, PDP, GOT</p> <p>(5) Study for a new function or a new Job - to achieve new competences - using GOT, PDP, LearnWeb</p> <p>(6) Want some support - mainly through social communications - LifeRay, GOT, LearnWeb</p> <p>(7) Want to know something - this is standard for teachers - GOT, LifeRay, LearnWeb, PDP</p>
Aim and expectation of the demonstrator	<p>We aim to prove the significance, usability and effectiveness of TENCompetence software platform and methodology, being used for complex competence development programs in authentic learning settings. At this stage there is no suitable software platform and tools aiming to fully support the I*Teach Methodology, so we expect that the use of the TENCompetence platform will significantly improve the way teachers learn and apply the I*Teach methodology.</p> <p>This type of pilots use the following types of learning:</p> <ul style="list-style-type: none"> <li>- project-based learning</li> <li>- problem-based learning</li> <li>- active learning</li> <li>- self-organised learning</li> <li>- communities of practice</li> <li>- knowledge management</li> </ul>
Context	<p>The ICT Teacher training pilot is organised in groups between 15 and 30 teachers. Each pilot will take between one month and three months in length. There will be short face-to-face sessions (between one and five days) and long self-study period, where teachers have to apply what they learn in real work settings. Most face-to-face sessions will take place also in the teachers working environment.</p>
Business model / case shown in the demonstrator	<p>The pilot is somehow related to the following two business cases:</p> <p>(1) Flexibility - benefits that allow an organization to respond to change without incurring additional expenditure.</p> <p>(2) Strategic fit - Benefits that contribute to the desired benefits of other initiatives, or make them achievable.</p> <p>This pilot is trying to cover most of the planned usage profiles and in such way to prove the usefulness and significance of the TENCompetence framework and approach.</p>
Business / valorization opportunities	<p>The critical mass of trained teachers can serve as an important factor in forming new communities of practice which will require new self-development by utilising all of the features TENCompetence framework provide for constant self competence development.</p>
Relevance of TENCompetence for the demonstrator context	<p>Most of the teachers face new challenges during their work in the class. They feel the need of continuing the exchange of good practices in the professional community formed during the course. Thus we identified a strong need of the trainees to continue their further competence development preserving all the information channels built during the initial training. This function is ideally suited for the TENCompetence infrastructure, and in this way all the I*Teach trainers found this new innovative tool providing teachers with a relevant support and ensuring their lifelong learning. They considered TENCompetence infrastructure to be an environment for converting an established professional community in a</p>

	virtual one, rather than just a tool for communication. In addition, they could place through the tooling all the needed learning materials and other resources at teachers disposal, as well as to prepare distance training for I*Teach scenarios. But most of all, their experience was to use successfully the infrastructure for teachers' competence development and to give them a chance to continue their work on eLearning materials in collaboration with other colleagues and students. TENCompetence provides an important platform for putting the idea of collective intelligence in action.
Competence profiles and competences involved	<p>The main competences involved are so-called Enhanced competences/skills, which are an extension of soft skills, where ICT is used to enhance the ordinary skill. So ICT is used as a means to improve the skill.</p> <p>There are four main competences included in this pilot:</p> <ol style="list-style-type: none"> <li>1) How to teach information skills using ICT</li> <li>2) How to teach presentation skills using ICT</li> <li>3) How to teach working on a project skills using ICT</li> <li>4) How to teach working in a team skills using ICT</li> </ol> <p>Each one is further sub-divided in other sub-competences. For each main competence we have developed a competence profile, and for each competence profile – several competence development programs.</p>
Training needs	Localized versions for all the tools, so the users can work with them in Bulgarian language. Well written user guides in Bulgarian language.
Implementation plan	<ul style="list-style-type: none"> <li>- Design the training sessions, till 15<sup>th</sup> of April</li> <li>- Prepare the exact competence development plan, till 15<sup>th</sup> of April</li> <li>- Develop the training resources, till 30<sup>th</sup> of April</li> <li>- Develop the first plan for all the training groups, till 15<sup>th</sup> of May</li> <li>- Prepare all the needed resources on the servers, till 25<sup>th</sup> of May</li> <li>- Set up the help desk, till 25<sup>th</sup> of May</li> <li>- Prepare the evaluation instruments, till 25<sup>th</sup> of May</li> <li>- Start the training of the first group, around 29<sup>th</sup> of May</li> <li>- Expected end of the training, mid- October</li> <li>- Analysis and reporting, ongoing</li> </ul>
Evaluation plan	During the evaluation of the ICT pilot all impact indicators (see ID4.13) will be used. For the evaluation itself all the available evaluators of WP4 will be used. The evaluation will be based on several data collection instruments (mentioned in section 3 of ID4.13). Once the data is available and the pilot has finished, the analysis will be done and evaluation results will be summarized.
Could you mention one or more results with which you would consider your demonstrator a success?	<p>80% of teachers have developed their project using TENCompetence infrastructure and tools</p> <p>90% of teachers increase the number and level of competences gained</p>

### **A.5.2 Implementation**

The implementation of the pilot was as follows:

**Till the 15<sup>th</sup> of May:** Design of the face-to-face sessions

**Till the 15<sup>th</sup> of May:** Preparation of the concrete competence development plan

**Till 31<sup>th</sup> of May:** Development of the learning resources

**Till 10<sup>th</sup> of June:** Develop the first plan for the group

**Till 15<sup>th</sup> of June:** Preparation of all the needed resources on the servers

**Till 31<sup>th</sup> of July:** Set up the help desk

**Till 31<sup>th</sup> of July:** Preparation of the evaluation instruments

**13<sup>th</sup> of July:** Start the actions of the first group

**Mid- October:** Expected end of the actions

**End of July 2009:** data collection from the first group for evaluation

Note: As the Ministry of Education and Science did not allowed teachers to participate in educational actions during the learning time of the academic year, we had to wait until summer vacation to organize teachers for the pilot.

#### Registration of the participants.

The registration period took place from the end of May till the end of June. For the first pilot training group we invited some participants of the 1<sup>st</sup> pilot as well as teachers who we trained in other courses but they stated to be interested in the TENCompetence approach. We kept the limit of 30 trainees for this group accordingly the labs capacity.

#### Actual number of participants

30 teachers in different subject areas – math, natural sciences, human sciences and arts, participated in the first group. One of them occupies the deputy headmaster position. One teacher joins the group later.

#### Learning resources:

The Moodle platform was used for integration of the TENCompetence tools. The educational scenario was described supported by presentations, handbooks and assignments. The learning materials are also published there: electronic versions (*ppt* and *doc* format) of the printed handbooks in Bulgarian language, web 2.0 concept dictionary, assignments for face-to-face session and final project assignment. A discussion forum was established there.



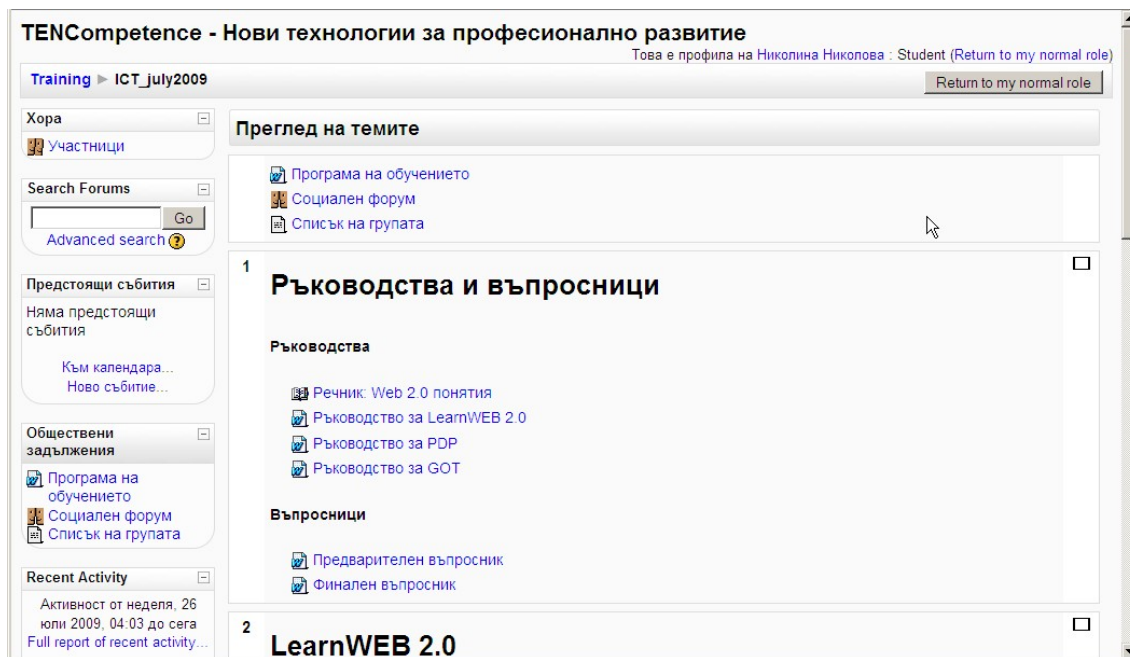


Figure A.5.1 Moodle e-learning environment for the pilot

### Training:

To carry out the assignments the PDP, LearnWeb and Goal Orientation tool were used as well as web 2.0 applications – YouTube, Flickr, ipernity, Delicious, TENTube etc.

Participants adapted the proposed learning path creating their own personal development plan for studying I\*Teach methodology according their knowledge and needs. They used an integrated blog to share useful learning resources found in Web 2.0 applications by LearnWeb. They added comments to the found resources, and rated existing comments. Teachers found other people with the same or similar goals through the GOT tool and used their experience in planning their own self-training.

During the distance learning phase the participants publish their own photos and videos in YouTube and Flickr and described them in the LearnWeb tool.

The whole training follows *learning-by-doing* approach and the I\*Teach methodology.

### Face-to-face stage:

The face-to-face stage took place on the 13<sup>th</sup> and 14<sup>th</sup> of July and followed the next workflow:

After presenting the learners they were separated in two groups of 16 participants each. Each group's work was facilitated by two experts. First of all the learners were familiarized with Web 2.0 terminology and concepts (blog, tag, folksonomy, etc).

The next step was to show the learners how to use the LearnWeb tool to search, evaluate, comment and classify learning resources. The training was based on the assignment around improving folk dances skills. The topic was chosen on a base of preliminary inquiry about the participants' interests.

Familiarizing with the PDP tool was done through the next assignment – studying I\*Teach methodology and active methods of learning/teaching. The task was to evaluate their own skills, to adapt a provided development plan according to their needs and style of learning and to

implement it using the blog so as to share their progress and experience. The link to the LearnWeb was used for searching useful learning resources.

Another task was to find people (using Goal Orientation tool) who also have interest in the I\*Teach methodology and to share exiting plans with them. Some teachers browsed the profiles of the people available in the TENTube tool.

The last assignment during the face-to-phase stage was oriented to the very attractive art of carving. The teachers should study what is carving, what is its history, what instruments are used in this art, and to find pictures of international exhibitions. After that, they had to create a development plan and to find learning resources for studying the art of carving. As the implementation of plans is very time consuming, it was reserved for the distance phase.

#### Distance learning stage:

During the two weeks distance learning stage teachers had to finish the study of the carving art and to share pictures of their products and videos showing their progress.

Their next assignment was to create and implement personal development plan related to the improvement of their professional skills in their subject area.

During the final meeting the participants showed their results and commented their progress, problems, ways of solving.

#### Workload of learners

Almost all of the participants spent as average of 16 hours on the self-training sessions in the computer room. The 75% of participants reported an average of 2,6 hours, with a minimum of 1 hour and a maximum of 6 hours spent at home or elsewhere.

#### Tools used (see Figures A.5.2-A.5.7)

PCM (*Personal Competence Management*): This tool was used by the expert to create relevant competence profiles and competences.

LearnWeb2.0: the tool was used to search relevant multimedia resources, to evaluate and comment resources, as well as to publish their own materials. Its use was essential for all the tasks and projects.

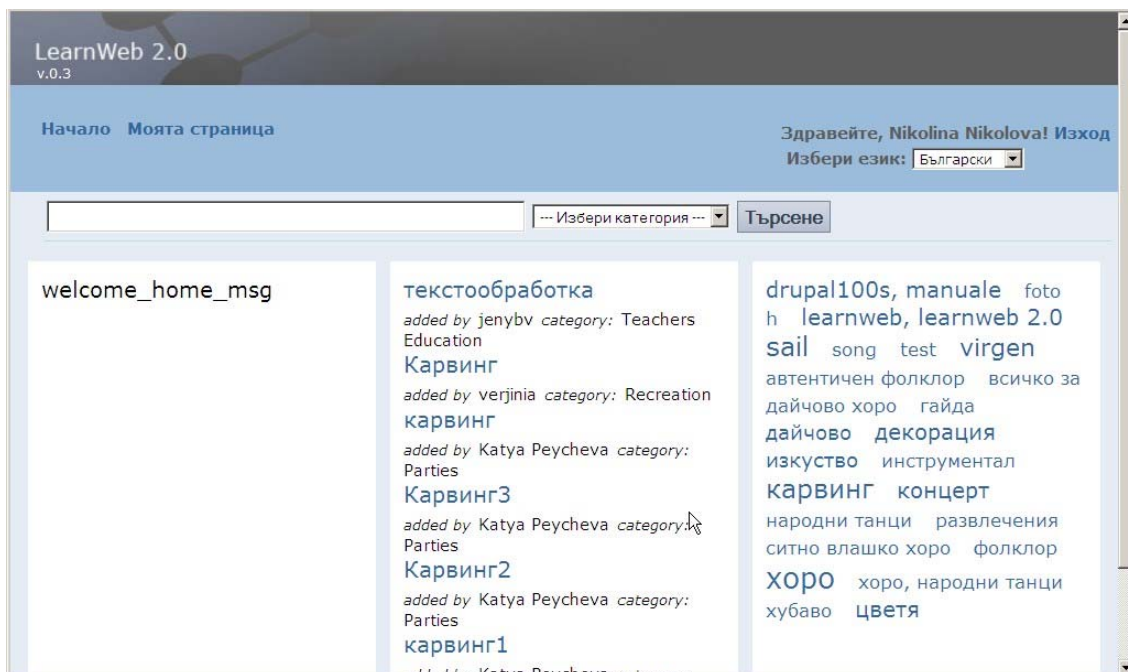


Figure A.5.2 LearnWeb: Resources added by teachers

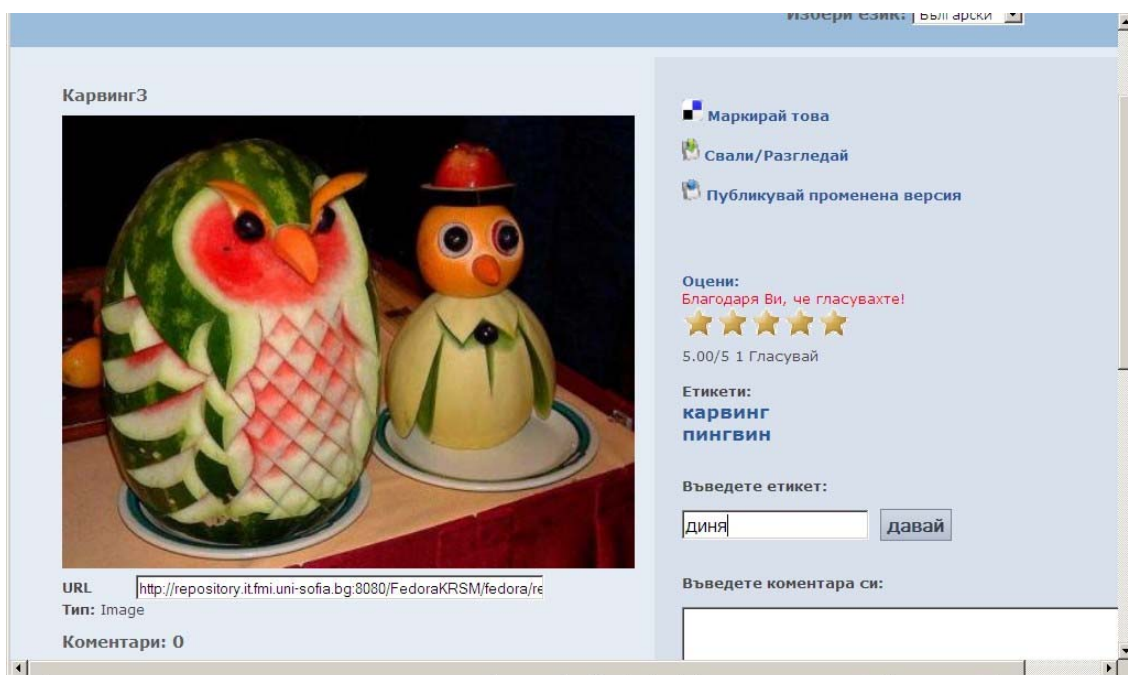


Figure A.5.3 LearnWeb: The art of carving

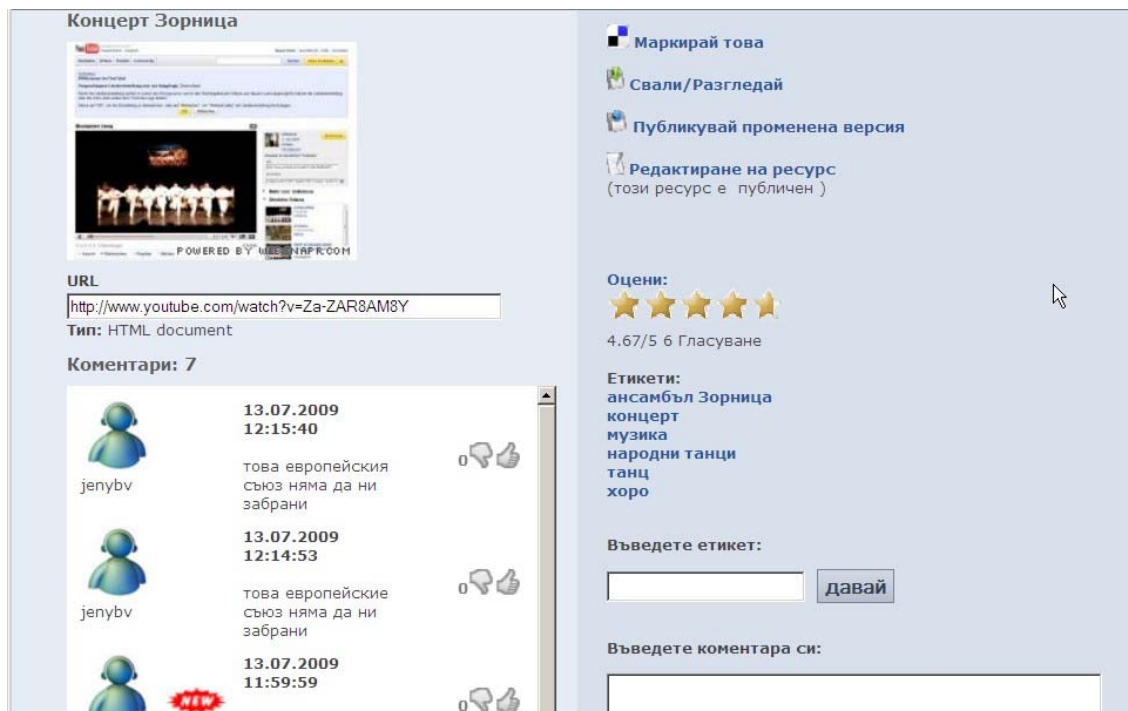


Figure A.5.4 LearnWeb: Tagging and commenting a Folk Dances video lesson

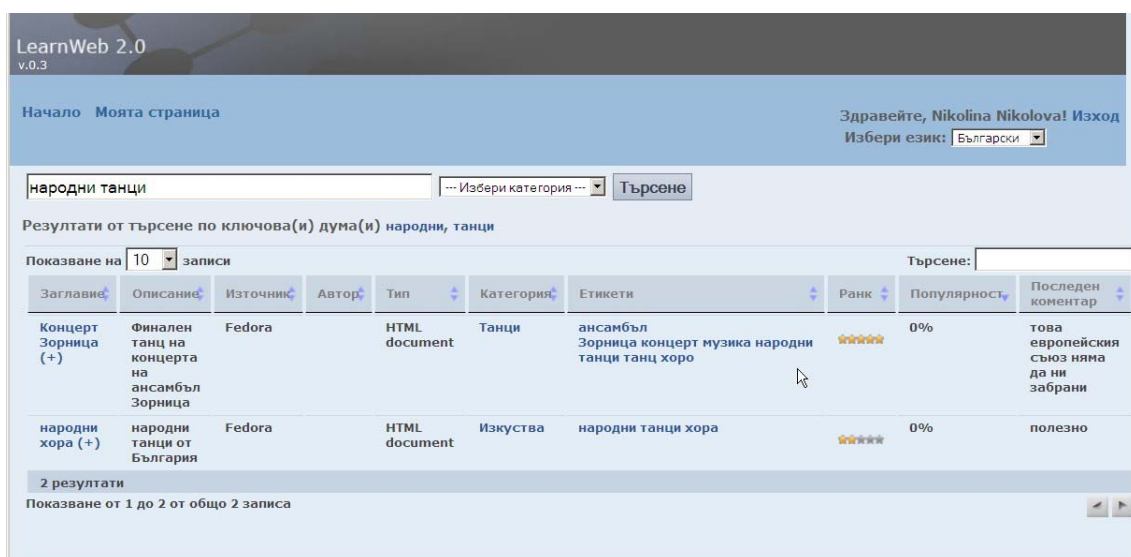


Figure A.5.5 LearnWeb: Usefulness of ranking and comments

Web PDP (*Personal Development Plan*): It was the basic tool for teaching the theory of I\*Teach methodology. Participants used a preliminary created profile and learning path to evaluate their competences, adapt the plan, add useful resources and perform the plan. The associated blog was used for sharing experience.

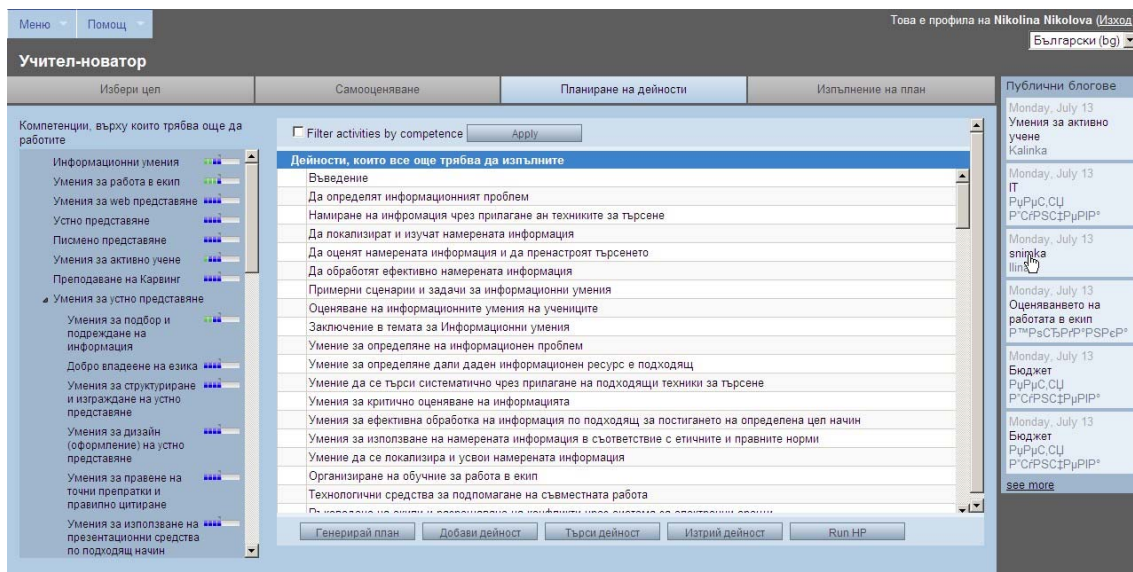


Figure A.5.6 PDP: I\*Teach Methodology personal development plan

Goal Orientation Tool (GOT): the favorite tool for the participants. They used it to find appropriate communities and profiles, to collect buddies and to see how people with similar interests develop their competences.

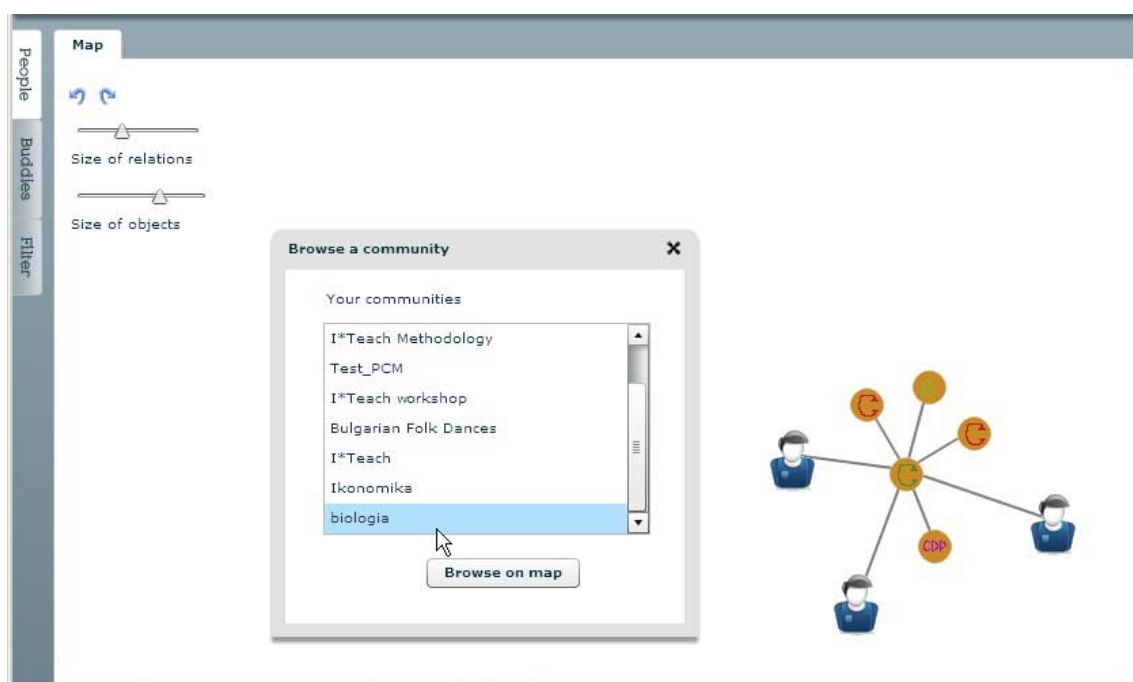


Figure A.5.7 GOT:Joining professional community

### A.5.3 Evaluation methodology

Table A.5.1 indicates the different data sources considered to evaluate the pilot according to the evaluation plan. Similar data sources were employed in the first and second version of the pilots (Cycle 1 and 2). Quantitative data were collected in two questionnaires: a pre-test answered at the launch of the pilot dealing with the participants' characteristics and expectations of the pilot; a post-test evaluation of the pilot, which was completed by the participants the last week of the



experience (see section A.5.6.). The log files generated by the TENCompetence infrastructure also provide quantitative data for the analysis.

**Table A.5.1. Data sources for the evaluation of the third ICT Teacher training pilot and labels used in the text to quote them**

Data source	Type of data	Labels
<i>Pre-test, post-test questionnaires</i>	Quantitative and qualitative participant characteristics, expectations and evaluation.	[pre-test] [post-test]
<i>Log files</i>	TENCompetence server logs of the PDP tool (taking into account only the participants' logs)	[logs]
<i>Context of the pilot</i>	Qualitative descriptions of the context characteristics in which the pilot is framed (previous section)	[context]



**Figure A.5.8 Discussion about the relationships between the TENCompetence tools**

## A.5.4 Evaluation results

### Participants' characteristics

The [pre-test] questionnaire was done mid July 2009. A total of 30 participants, 28 women and 2 men, started with competence development in the ICT pilot. Their mean age is 44,1 years old, with a standard deviation of 6,4 years; all participants are between 30 and 57 years old. The median lies at 44 years old. One participant does not give her age. All participants live in

Bulgaria. Two participants in addition to the 30 mentioned above appear in the pre-test, but the only thing they indicate is that they are women, live in Bulgaria and are teacher as well.

Twenty-four of the 30 participants hold a University Master's degree, 5 a Bachelor's degree, and one participant holds a PhD. All 30 say that their profession is teacher, and 29 say that same thing of their current job function. One person is deputy headmaster.

Only one of the 30 participants has also taken part in the previous ICT pilot. This participant does not answer the question: "Please explain how you have benefit from that experience?"

The question "How would you describe your current proficiency level with respect to this ICT enhanced competences?" is answered by all 30 participants minus 1. The scores are shown in Table A.5.2. Most of them considered themselves beginners or intermediate.

n=29	#	%
Novice	0	10,3%
Beginner	3	44,8%
Intermediate	13	37,9%
Advanced	11	6,9%
Expert	2	10,3%

**Table A.5.2 Current proficiency levels**

For the question "Is it important for you to acquire the following types of competences?" we see in Table A.5.3 that almost everyone thinks that all competences are important to acquire.

Important (n=30)	YES	NO	BLANK
Knowledge	93,3%	3,3%	3,3%
Functional skills, know how to do things	96,7%	3,3%	0,0%
Social skills	100,0%	0,0%	0,0%
Knowing how to behave according to the rules and values of the profession	96,7%	0,0%	0,0%
Knowing how to guide my future use by reflection on current practice	93,3%	0,0%	6,7%
Knowing how to find creative solutions for problems related to this competence	96,7%	0,0%	3,3%

**Table A.5.3 Importance of competence types**

70% of participants have followed a training or course which was competence-based. 16,7% have followed a competence-based training once and 10% have never participated before in this type of training. 3,3% of participants didn't know what competence-based training is.

#### *Experience with web-based learning*

The experience of the participants in using the computer to learn and/or communicate is in most of the cases high. 86,6% of participants use the computer often (33,3) or very often (53,3) to learn or to communicate. 10% uses computers sometimes and only 3,3% uses them occasionally. Any participant (0%) has never used a computer to learn or to communicate.

Moreover, only one person has never used a chat. The other 29 have. Everyone of the 30 participants have use Google to search for information. Also everyone has shared music, photographs or other documents on Internet. Also everyone has shared music, photographs or other documents on Internet.

Experience with using a virtual campus is not that high. In the question "How would you describe your experience with distance learning?" Participants could fill the number of courses, modules etc. they had followed through distance learning. Three participants leave the answer



blank. Twelve of the 30 say Zero: no experience (40%), 5 say one or two times (16,7%), 5 say three or four times, and then we have one who says 7, one 8 times, one 10 times, and there is one participant who writes ‘many’.

Twenty-four participants (80%) describe their experience with or their appreciation for one of more tools (Google, Chat, Campus Virtual, etc.). Six leave this empty. Clearly Google, searching and search engines is mostly mentioned. Also chat, sharing information and online communication is frequently mentioned.

#### *Facilities*

Of the 30 participants 21 have Internet access at home. No one says NO, but 9 leave the answer open.

#### *Motivation*

Upon the question “Which of the following reasons for following the ICT pilot apply to your situation?” seven possible answers were presented that participants could tick that apply to their situation. In total 119 answers are ticked.

n=30

I want to keep up to date within my existing function or job	83,3%
I want to study for a new function or job or improve my current job level	73,3%
I want to reflect on my current competences to look which functions and jobs are within my reach or to help me define new learning goals	43,3%
I want to improve my proficiency level of a specific competence	76,7%
I want some support on a non-trivial learning problem	30,0%
I want to explore the possibilities in a new field (learning network) to help define new learning goals	53,3%
Because I have participated in the first ICT Pilot 2008 and I liked it.	36,7%

**Table A.5.4 Motivation**

Two participants tick only one answer. Often more answers are ticked; the average is almost 4 of the 7 answers. Five persons tick all 7 reasons.

#### *Navigating learning paths*

This is the dimension that ranges from completely self-steering to being guided by the system with little choice.

In the questionnaire first an intro was given: “The course will provide you with a diversity of web-based learning resources. In addition, your learning can be supported in several ways. We can outline a path for you, we can ask you to follow a specific learning path, or we can give you the freedom to follow your own path.”

After that one of three possibilities could be ticked on the basis of the question: “What would be most supportive for your learning”?

- Support me with learning resources only
- Support me with learning resources + an outlined path + the possibility to choose my own learning path
- Support me with learning resources + a path that I need to follow

Navigation (n=30)	#	%
1. Learning resources only	1	3,3%
2. Learning resources + outline path + choose own path	6	20,0%
3. Learning resources + outline path to be followed	14	46,7%
Empty	9	30,0%

**Table A.5.5 Learning styles preferences**

30% do not answer this question. Almost half feel that they do not need freedom of navigation.

#### *Collaboration in the Post-test*

To the question whether participants want to be involved in the post-test 20 of the 30 participants say ‘Yes’ and 10 leave it empty. As we will see, in fact all 30 participants did collaborate in the post-test, plus one of the two participants who only answered the very first questions.

### **Results of the experience**

As said all 30 participants that took part in the pre-test questionnaire also participated in the post-test. In addition one participant who did not fill the pre-test questionnaire did do this questionnaire. The participants (n=31) report over a period of 2,5 weeks since they first started with using the Ten Competence system for developing their competences. This was between July 13th and July 31th 2009.

#### *General*

30 of the participants answered the question in the [post-test] regarding the hours spent on personal competence development. According to their answers, they spent as average 16 hours on the self-training sessions in the computer room (SD=1,74 hrs; Minimum=13 hours; Maximum=21 hours). Seven persons do not answer the question about spending time at home or elsewhere. The 24 participants report an average of 2,6 hours, with a minimum of 1 hour and a maximum of 6 hours spent at home or elsewhere.

#### *Technical problems*

At the question whether the learning process of the participants was hindered by technical problems about one third of the 31 participants indicated in the [post-test] that there were no or hardly any problems whatsoever. But more participants say that there were big problems. Seven participants say that their learning process was completely hindered by technology. These technical problems may be explained by context of the pilot. The participants have some experience using computers [pre-test] (see above), however they are not “fluent” using ICT [context] and in particular using learning systems [pre-test]. According to the pilot coordinators the participants had a very low computer literacy and they met “technical” problems all the time.

n=31	#	%
Not at all	2	6,5%
Hardly	9	29,0%
Moderately	6	19,4%
Largely	6	19,4%
Completely	7	22,6%
No answer	1	3,2%

**Table A.5.6 Technical problems**

#### *Competence development*

There were three competence profiles participants could devote activities to. According to the [post-test] 31 participants did the following. 29 of them worked on the I\*Teach competence profile, 23 of them on the “Folk dances” and four in the “Carving” competence profile. Hence, of the 31 participants seven participants worked on one profile, 22 on two profiles, and 2

participants performed activities related to all three competence profiles. We see that almost everyone chooses for I\*Teach. Carving seems to not to be very popular.

Table A.5.7 gives an overview of how much participants have learned with regard to knowledge, functional skills (knowing how to do things), social skills, norms and values (knowing how to behave according to the rules and values of the profession), metacognition (knowing how to guide my future use by reflection on current practice), and creativity (Knowing how to find creative solutions for problems related to this competence). We see that the mean scores here tend to be towards ‘much learned’ for knowledge and functional skills, and towards ‘very much learned’ for social skills and professional norms and values. Metacognition and creativity is a bit in between, but these are still high scores in terms of increased competence.

Increased competence	(almost) nothing	little	not little, not much	much	very much	mean	Increased competence
Knowledge	0	1	13	17	0	3,5	Knowledge
Functional skills	0	2	15	14	0	3,4	Functional skills
Social skills	0	1	4	18	8	4,1	Social skills
Norms and values	0	2	2	19	8	4,1	Norms and values

**Table A.5.7 Percentage of participants indicating how much they have learned with regards to the difference competence types**

#### *Appreciation of this way of learning*

The average appreciation is that the participants enjoyed this way of learning. 84% of the participants enjoyed this way of learning (very much). The other 16 percent is neutral, but no one is negative.

A large majority of 87% wants to (certainly) continue to develop this competence(s) further in the future, one person is not sure, and only two persons (6%) do not want to develop the competence(s) further. One person leaves this item blank.

#### *Impact*

We asked whether participants already experienced benefits from participating in the pilot, compared to the situation at the beginning of the pilot.

It seems that there are two groups here: a group of 10 persons that say that they experienced little benefits, and a group of 19 persons with an experience of many benefits. Of the first group nine have indicated to have had large or complete technical hindrances. Of the group with many benefits only two had reported on many technical problems.

Of the 31 participants 17 note down in what areas they experienced benefits.

---

Activities planning, searching for information

---

Creating a blog, using and sharing resources

Creating objects, profiles, professional network, searching for resources, development skills and competences

Creating self-development plan, self-assessment

Development of plan, activities and searching for resources

ICT

IT

IT, social and life skills  
 IT, social skills  
 Mathematics  
 New methods for self-improvement  
 New technologies  
 Plan development and use of new tools  
 Search and personal development planning  
 Social contacts, possibility for information exchange, news in the ICT area  
 Useful approach to search and exchange information  
 Working with tags, downloading and uploading resources, working in web communities

### *Appreciation of ICT learning resources*

Their appreciation of the TIC learning resources are scored as follows. With regard to difficulty 11 participants (39,3%) said that the resources were easy, 11 said they were difficult, and 6 (21,4%) were neutral. Three persons don't answer.

Almost everyone found the resources interesting (90,3%) or very interesting (3,2%). Two participants were neutral. 90,3% said that the resources were (very) useful, the other 9,7% are neutral. On the question whether the resources matched the learning needs 19,4% said hardly, 6,5% moderately, 71% largely and 3,2% completely.

### *Control of own learning*

We measured six aspects related to control of own learning. These were:

1. In the beginning, I quickly got an overview of the competences involved and my current proficiency level
2. I had a good overview on what I had done and what I had to do
3. I had insight into how my learning progressed
4. I had the feeling that I learned exactly what I wanted to learn
5. I had the feeling that I could plan my own learning
6. I felt in control of my own learning

Answers could be given on a five point scale from 'Agree completely' to 'Disagree completely'.

If we put

N=31	Aspects:	1	2	3	4	5	6
[1] Agree completely		3,2%	6,7%	0,0%	0,0%	0,0%	0,0%
[2] Agree		51,6%	60,0%	65,5%	63,3%	64,5%	51,6%
[3] Neutral		3,2%	0,0%	3,4%	6,7%	3,2%	3,2%
[4] Disagree		41,9%	33,3%	31,0%	30,0%	32,3%	45,2%
[5] Disagree completely		0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
No answer in #		0	1	2	1	0	0

**Table A.5.8 Control of own learning**

Answers to the six questions correlated strongly, thus that we can say that together they measured the extent to which participants felt in control of their own learning. Eleven of the 31 participants score 'Agree' on all six aspects, 6 of the 31 score 'Disagree' on all six aspects [post-test].

When rounded to the most nearby round value, we obtained the following scores: agree (completely) (61%), neutral (3%), disagree (36%). Again it seems as if the group as a whole

consists of two groups, one a bit less than two-third, the other a bit larger than one-third, with different appreciations of control over one's learning.

Of course here there are preferences as well: as we saw in the [pre-test] 14 of the 30 participants indicate that they like system control over learning paths, rather than being in control themselves.

#### *Collaboration with other participants*

We asked the participants to score six statements regarding collaboration on the same five-point scale.

1. I had lively and stimulating discussions with other participants in the pilot
2. I learned a lot from other participants in the pilots
3. In the larger group of all people following this course, we had a lively and stimulating discussion
4. In the larger group of all people following this course, we had a lively and stimulating exchange of data and files
5. Other participants in the pilot were able to answer my questions
6. I provided useful help to other participants in the pilot

N=31	Discussions in pilot	Learned a lot in pilot	Discussion others	Exchange others	Others answer	Provide help
++	22,6%	35,5%	19,4%	29,0%	3,3%	0,0%
+	64,5%	54,8%	67,7%	61,3%	70,0%	64,5%
+/-	3,2%	3,2%	9,7%	3,2%	10,0%	9,7%
-	9,7%	6,5%	3,2%	6,5%	16,7%	22,6%
--	0,0%	0,0%	0,0%	0,0%	0,0%	3,2%
Empty					1	

**Table A.5.9 Appreciation of collaboration with other participants**

On the whole there is a lot of appreciation for collaboration. Average 82,1% agree (completely) on all six statements. Statement 4 'In the larger group of all people following this course, we had a lively and stimulating exchange of data and files' has the highest score. To the statement 'I provided useful help' the most persons disagreed, followed by 'Other participants in the pilot were able to answer my questions'.

#### *Self-assessment with the PDP*

The environment offers the possibility for self-assessment within the PDP: people can estimate their own proficiency level and assign it a level ranging between 0 and 8.

The first three questions are about estimating one's own proficiency level within the PDP.

First it was asked for how many competences the self-assessment was used (n=29). No one has not used it, 24,1% for a minority of competences, 20,7% for half of their competences, 37,9% for most of them, and 17,2% for all competences.

On the question how difficult it was to estimate one's proficiency level (n=31), 12,9% say it was difficult, 51,6% is neutral, and 35,5% think it was easy.

The overall rating for the self-assessment functionality is shown in Table A5.10. More than a 68% of the participants consider the self-assessment functionality as useful or very useful. The three persons (9,7%) who think it is useless are persons that have indicated earlier to have had 'complete' technical problems, and they also indicated not have control over their learning.

N=31	
Very useful	3,2%
Useful	64,5%
Not useful nor not useless	22,6%

Useless	0,0%
Very useless	9,7%

**Table A.5.10 Rating for the self-assessment functionality**

#### *Plan activities*

The participants were asked how they had planned their activities. 30 participants answered. 22 of them (73,3%) say “I let the system generate a plan, based upon my self-assessment”. Four participants (13,3%) say “I let the system generate a plan, but I didn’t fill in the self-assessment”. And four tick both statements.

The next question was devoted to the way next activities to perform were selected from the list of activities. Of the 31 participants, one does not give an answer.

1. I performed the activities in the order in which they were listed
2. I started with the activities that I thought were easiest and then progressed to the activities I thought were most difficult.
3. I started with the activities that I thought were most difficult and then progressed to the activities I thought were easiest.
4. I started with the activities that I liked most, and then progressed to the activities that I liked least.
5. I started with the activities that I liked least, and then progressed to the activities that I liked most.
6. I first performed all activities related to one of the required competences, and then all activities of a second required competence and so on.
7. Arbitrarily, randomly

N=30	#	%
1) In the order listed	15	50%
2) First easy, then more difficult	9	30%
3) First difficult, then easy	2	7%
4) First the ones I liked, then the ones I disliked	5	17%
5) First the ones I disliked, then the ones I liked	1	3%
6) First the ones of one competence, then of the second one	9	30%
7) Arbitrarily, randomly	1	3%
<b>The order in which activities are performed</b>	<b>42</b>	<b>140%</b>

**Table A.5.11 Plan activities**

Twenty-two participants indicate only one choice, 5 give two choices, and two participants say that they selected activities in three different ways. One person ticks four ways how to select activities (1, 2, 4, 6).

#### *Marking activities as complete*

The PDP allows learners to mark activities as completed. Activities that are marked as completed are removed from the list of activities that still need to be completed and they are added to the history.

We asked first whether the participants used this possibility and, if they did not, what was the reason of not using it. Out of the 28 participants answering this question, 64,3% of the participants said that they did use this functionality. 10,7% said that they didn’t use it because they didn’t notice it was available and 21,4 because they didn’t know how to use it. 3,6% didn’t use it for other reasons (not specified). None of them said that they didn’t use it because they didn’t consider marking activities as complete helpful.

Regarding the question on when participants marked their activities as completed, six persons did not answer this question. Among them are the three persons who stated 'Technical Improvement' in the previous question. Three persons tick 2 possibilities, one ticks all possibilities. Table A.5.12 shows that they used this possibility mainly when they had performed the activity and thought that they mastered it well enough.

N=25	#	%
When I had performed the activity, regardless of how well I performed it	6	24,0
When I had performed the activity and thought that I mastered it well enough	17	68,0
When I had the feeling from the description of the activity that I mastered it, and needn't perform the activity	7	28,0
<b>The moment that activities are marked as complete</b>	<b>30</b>	<b>120,0</b>

**Table A.5.12 When participants marked activities as completed**

And then we asked how participants used the completed marks. Five persons do not answer. Also here three persons tick 2 possibilities, one ticks all possibilities. Most of them said that they used the completed marks to see how many activities they still had to perform through the "Show plan" button.

N=26	#	%
To see how many activities I already mastered through the 'Show history' button	6	23,1
To see how many activities I still had to perform through the 'Show plan' button	20	76,9
To see how far I had progressed by comparing the number of activities performed to the number of activities I still had to perform	5	19,2
<b>The way participants use completed marks</b>	<b>31</b>	<b>119,2</b>

**Table A.5.13 How participants used the completed marks**

Last but not least we asked to rate the possibility of marking activities as completed. Four persons did not answer. Almost 80% of the 27 participants who answer this question think this marking is (very) useful. 7,4% said that it is very useful, 70,4 said that it is useful and 22,2% said that it is not useful nor not useless.

#### *LearnWeb2.0*

First we asked the participants' rating of Learnweb2.0 in order to search new resources. As shown in Table A.5.15, it is clear that a majority thinks Learnweb2.0 is (very) useful in this respect.

N=31	#	%
Very useful	9	29,0%
Useful	17	54,8%
Not useful nor not useless	5	16,1%
Useless	0	0,0%
Very useless	0	0,0%

**Table A.5.14 Appreciation of LearnWeb2.0 to search new resources**

We also asked what the rating of Learnweb2.0 when used to share resources with their classmate/workmate was. The results are even more positive, with only two participants being neutral.



N=28	#	%
Very useful	8	28,6%
Useful	18	64,3%
Not useful nor not useless	2	7,1%
Useless	0	0,0%
Very useless	0	0,0%

**Table A.5.15 Appreciation of LearnWeb2.0 to share resources**

Thirdly we asked to rate Learnweb2.0 for use in rating and evaluating resources. Here again the rating is positive although a bit less than the previous rating.

N=31	#	%
Very useful	5	16,1%
Useful	24	77,4%
Not useful nor not useless	2	6,5%
Useless	0	0,0%
Very useless	0	0,0%

**Table A.5.16 Appreciation of LearnWeb2.0 to rate and evaluate resources.**

Finally we asked for what purpose Learnweb2.0 was used. More choices can be ticked. Seven persons tick all purposes, seven others tick two purposes.

N=30	#	%
To find additional resources for working on my competences	21	70,0%
To find other resources that would be useful for me	19	63,3%
To find resources that would be useful to someone else	11	36,7%
Other purpose, namely	0	0%
	51	170%

**Table A.5.17 Appreciation of LearnWeb2.0 to rate and evaluate resources**

Upon the question “What would you suggest to improve Learnweb2.0?” five participants comment. Three of them state ‘Technical improvement’, one says ‘Make it simpler’, and the last person writes: ‘The system is too low (maybe because of flash). Other technology can be more applicable’. All five have had serious technical problems, indicated earlier in the questionnaire.

#### *Goal orientation tool*

The first question on the Goal Orientation Tool (GOT) was “How would you rate the possibility to define goals?” The 31 participants answered this question and the majority thinks it is (very) useful, see table A.5.18.

N=31	#	%
Very useful	3	9,7%
Useful	21	67,7%
Not useful nor not useless	7	22,6%
Useless	0	0,0%
Very useless	0	0,0%

**Table A.5.18 Rating the possibility of defining goals**

The second question was “How would you rate the option to search for communities, competence profiles, competences, and resources?” One person did not answer this question. Here the opinions are even more positive.

N=30	#	%
Very useful	2	6,7%
Useful	25	83,3%
Not useful nor not useless	3	10,0%
Useless	0	0,0%
Very useless	0	0,0%

**Table A.5.19 Rating the option to search communities, competence profiles, competences and resources**

The next question was “How would you rate the possibility to filter different components like competences, resources, etc.?” Two persons did not answer. Again most participants (82,7%) hold the opinion that this possibility is (very) useful.

N=29	#	%
Very useful	3	10,3%
Useful	21	72,4%
Not useful nor not useless	5	17,2%
Useless	0	0,0%
Very useless	0	0,0%

**Table A.5.20 Rating the possibility to filter different components**

Question four in this category asked: “Did you use the option to search by keywords? If not, why not?”. One person did not answer. We see that hardly anyone uses the option.

N=30	#	%
Yes	27	90,0%
No, because I didn’t notice that the possibility was available	0	0,0%
No: I noticed that this possibility was there, but I didn’t know how to use it	2	6,7%
No, because I didn’t consider it as helpful	0	0,0%
No, for another reason	1	3,3%

**Use the option to search by keywords**

**100**

**Table A.5.21 Searching by keywords**

The next question was “For what purpose did you use GOT? Participants could tick all purposes that applied in their case. Six persons do not answer at all. A lot of purposes are ticked: almost three as an average. Five persons even tick all six purposes. We see that more than 60% of the responding participants indicate that finding resources for themselves and join communities with useful resources are purposes to use GOT.

N=25	#	%
To find additional resources for working on my competences	15	60,0%
To find other resources that would be useful for me	16	64,0%
To find resources that would be useful to someone else.	6	24,0%
To find other users with similar competences	8	32,0%
To join communities with useful resources for my education	16	64,0%
To define my goals	8	32,0%
Other purpose, namely	0	0,0%

**Purposes for using GOT**

**69**

**Table A.5.22 Purposes of using GOT**

The overall rating of GOT was as follows. One person does not answer. Two participants (6,7%) found it very useful, 24 (80%) said it GOT is useful and 2 (13,3%) indicated that it is not useful, nor not useless. It is clear that the participants like GOT.

#### *Other tools/resources*

*Moodle was used as a Course management system. Participants were provided with Moodle integrated learning tools such as concept dictionary and discussion forum. The next question: "How do you value having additional resources in the system (dictionary, quick-guides, etc.)?" relates to these tools and respective resources – quick guides, links to web2.0 applications, power point presentations and description of assignments. The results are as follows. Five persons do not answer. Again the positive valuation is clear.*

**N=26**

Very useful	15,4%
Useful	76,9%
Not useful nor not useless	7,7%
Useless	0,0%
Very useless	0,0%

**Table A.5.23 Valuing other tools**

#### *Suggestions for improvement*

Some participants inform us about their overall level of satisfaction and their suggestions for improvement:

- This training was useful in order to acquire new technologies and meet colleagues with my interests.
- New technologies, contacts with colleagues
- I like this course!
- Short but useful
- The education was very interesting, interactive and stimulating creativeness. It will be better if there are PCs appropriate to the software needs
- Useful for our further work
- Search for users,
- Removing some bugs
- The training was very valuable because it gave as contacts with colleagues with similar interests. I learn how to find quickly useful information and how to share my knowledge, skills and competences
- Three persons say that they need first to develop technology-enhanced learning and then think about other related pedagogical and social competences

The opinion of the latter three persons is that, first of all, they should be trained in using ICTs (as competence) and after that in pedagogical and social competences. The answer corresponds to other answers (technical problems, low experience in self and web learning, etc.).

### **A.5.5 Comparison with previous ICT pilots and discussion**

This appendix reports the evaluation results of the third ICT Teacher Training pilot. Each pilot has used the TENCompetence PCM available at the time of the pilot (2007, 2008 and 2009), being this third pilot the most complete in that it includes not only functionalities related to the

creation and performance of the Personal Development Plan but also means for searching and sharing resources (LearnWeb2.0) and orientation of goals (GOT).

The characteristics of the participants were similar in the three pilots. The participants were highly educated middle-aged teachers interested in ICT but without being highly ICT fluent. Their main motivation was job improvement and improvement of their proficiency level. 44 professional teachers were involved in the Cycle 1 pilot, 136 in the Cycle 2 pilot and 32 in the Cycle 3 pilot. There were only very few participants present in more than one pilot. The participants in the three pilots didn't differ much in the hours spent on competence development being between 36 and 60 the hours spent in the first pilot, between 40 and 60 in the second pilot and between 15 and 23 in the third pilot. In this third pilot participants do not only devoted time to competence development in the computer room where the PCM was available, but also at home (average of 2,6 hours). As in the Agora pilot this may be an effect of the Web aspect of the enhanced system but it also denotes somehow the interest of the participants.

In the Cycle 1 ICT teacher training pilot (Moghnieh et al., 2008b) it became clear that more participants using the PCM felt more in control of their own learning than the participants using an exiting LMS (Moodle). The hierarchical structure of the competence profiles, competences and activities available in the PCM seemed to be an important factor contributing to this effect. Half of the participants chose their own learning route and learning resources, so for these participants this may have contributed to their feeling in control of their own learning. The fact that the participants using the PCM also passed the competence assessment led us to say that the elements of the PCM together fostered competence development. In this pilot, we found no effect of the PCM on collaboration.

The Cycle 2 ICT teacher training pilot (Schoonenboom et al., 2009) was also a positive experience for its participants. In this pilot all participants were using the TENCompetence PCM and almost all of them (94%) enjoyed this way of learning and (95%) wished to develop this competence further. Also, the possibility that was offered to follow an outlined path or their own path was seen as their preferred way of learning by 25% more participants after the pilot than before the pilot. Related to this, the possibilities for choosing one's own learning elements and routes was highly valued by the participants. Furthermore, for around 30% these possibilities made learning more efficient. When comparing choosing one's own elements and routes, following their own order is still more popular, which is also reflected in the fact that a small minority regretted having used only a selection, and not all elements, while hardly anyone wished they had followed the prescribed order instead of their own order. Collaboration with other participants was valued very highly in this pilot. Communication with others not only happened through the PCM but other means, especially email, Skype and face-to-face meetings were also used.

Finally, the Cycle 3 ICT teacher training pilot reinforces the results of previous pilots. A large majority (84%) of the participants enjoyed this way of learning (very much) and (87%) wants to (certainly) continue to develop this competence(s) further in the future. Even some of them, especially those not reporting general technical problems, pointed out concrete experienced benefits from participating in the pilot compared to the situation at the beginning of the pilot. 73% of the participants let the system generate a plan based upon their self-assessment. 50% of the participants didn't follow the activities as listed in the resulting outlined plan. This is a 30% more of the participants that at the beginning of the pilot said to prefer having the resources with an outline path but with the possibility of choosing their own path (only 20% said in the pre-test that this would be most supportive for their learning). 68% of the participants consider the self-assessment functionality as (very) useful or very useful and almost 80% thought that marking activities as complete is (very) useful. On the whole there is a lot of appreciation of collaboration facilitated by the pilot.

More than 83% of the participants found that LearnWeb2.0 is (very) useful to search new resources, and more than 93% said that it is (very) useful to share and rate resources. 70% explicitly stated that they used LearnWeb2.0 to find additional resources for working on their competences. Regarding the GOT, more than 77% of participants found it (very) useful to define goals and more than 90% said it is (very) useful to search for communities, competence profiles, competences, and resources. 60% of the participants explicitly indicated that they used GOT to find additional resources for working on their competences. Therefore, LearnWeb2.0 and the GOT seemed to be significantly useful to assist competence development in this pilot.

### A.5.6 Data collection instruments

The evaluation instruments employed in the pilot are the following:

- Pre-test questionnaire
- Post-test questionnaire

Learner's pre-test questionnaire

*Important remarks for those who implement the pre-test questionnaire.*

- With each question, the first column refers to the question ID (identification number) as it should be visible in the data file that will be send to the evaluators. The second column shows the question number as it should be visible to the persons who fills in the questionnaire.
- With each possible answer on a particular question, the number between square brackets ([ ]) refers to the value that should be filled in with that question in the data file. The text of the answer refers to the label that the participant should see on the input form.

Dear participant in the ICT Pilot,

Thank you for participating in the ICT Pilot. The ICT Pilot is a pilot within the TENCompetence project, which aims at establishing an infrastructure for life-long competence development. As the infrastructure is under development, it is very important for us to evaluate how the infrastructure is used in the xxx Pilot. As part of the evaluation, we have set-up this questionnaire. Your participation in this evaluation would be highly appreciated, as feedback from the pilot participants is our main source for improving the infrastructure. We would therefore like to ask you to fill in this questionnaire.

We like to stress that by returning this questionnaire, you only grant the researchers permission to use your answers for the evaluation of the pilot. The data you provide will be made completely anonymous before data analysis. They will be used by the evaluation researchers only and not be distributed to anyone else. Thank you for your participation!

The questionnaire contains 27 short questions in total; answering the questions will take about 10 minutes.

*Explanation on the questionnaire*

The questionnaire includes several question types:

- \_\_\_\_\_ asks for a short answer
- \_\_\_\_\_ indicates that you can type in longer text.
- \_\_\_\_ / \_\_\_\_ indicates that you have to choose one of several answers; you can either circle the correct answer, or strike-through or remove the incorrect answer.
  - a round box 'o' indicates that you have to choose one of the available answers
  - a square box '□' indicates that you can choose several answers; tick all answers that apply.

		<b>Background information</b>
P001	(1)	Date: __ / __ / 2009
P006	(2)	Name: _____ Note: your name is needed only to combine the information you provide before and after the pilot; your answers will be processed anonymously.
P007	(3)	Age: _____ years
P008	(4)	Sex: [1] Female / [2] male
P009	(5)	Country in which you live: _____
P010	(6)	Highest educational degree that you earn: <input type="radio"/> [1] Primary school <input type="radio"/> [2] Secondary school <input type="radio"/> [3] Secondary vocational education <input type="radio"/> [4] Higher vocational education <input type="radio"/> [5] Bachelor's degree <input type="radio"/> [6] University master's degree <input type="radio"/> [7] PhD
P011	(7)	Profession: I am a _____
P012	(8)	Current job function: _____
		<b>Competence development</b>
P113	(9)	Did you participate in the first ICT Pilot (2008)? [2] yes / [4] no Please explain how you have benefit from that experience? _____ _____ _____
P010	(10)	How would you describe your current proficiency level with respect to ICT enhanced competences? [1] Novice / [2] beginner / [3] intermediate / [4] advanced / [5] expert
		Is it important for you to acquire the following types of competences?
P017	(11)	- Knowledge [2] yes / [4] no
P018	(12)	- Functional skills, know how to do things [2] yes / [4] no
P019	(13)	- Social skills [2] yes / [4] no
P020	(14)	- Knowing how to behave according to the rules and values of the profession [2] yes / [4] no
P021	(15)	- Knowing how to guide my future use by reflection on current practice [2] yes / [4] no
P022	(16)	- Knowing how to find creative solutions for problems related to this competence [2] yes / [4] no
P110	(17)	How often have you followed a training or course which was competence-based? [1] Never / [2] Once / [3] Two or three times / [5] I don't know what competence-based training is
		<b>Experience with web-based learning</b>
P111	(18)	How often have you used a computer to learn or to communicate?

		[1] Never / [2] occasionally / [3] sometimes / [4] often / [5] very often
P023	(19)	How would you describe your experience with distance learning? I have followed __ courses / modules etc. through distance learning.
P025	(20)	Have you ever used a chat? [3] yes / [1] no / [6] I don't know
P026	(21)	Have you ever used Google to search for information? [3] yes / [1] no / [6] I don't know
P028	(22)	Have you ever shared music, photographs or other documents on Internet? [3] yes / [1] no / [6] I don't know
P029	(23)	Describe in a few lines your own experience with the above mentioned tools (Google, Chat, Campus Virtual, etc.)?  _____ _____
P030	(24)	Which of the following reasons for following the ICT pilot apply to your situation? Tick all of the answers listed below that apply to your situation. <input type="checkbox"/> [1] I want to keep up to date within my existing function or job <input type="checkbox"/> [2] I want to study for a new function or job or improve my current job level <input type="checkbox"/> [3] I want to reflect on my current competences to look which functions and jobs are within my reach or to help me define new learning goals <input type="checkbox"/> [4] I want to improve my proficiency level of a specific competence <input type="checkbox"/> [5] I want some support on a non-trivial learning problem <input type="checkbox"/> [6] I want to explore the possibilities in a new field (learning network) to help define new learning goals <input type="checkbox"/> [7] Because I have participated in the first ICT Pilot 2008 and I liked it.
P031	(25)	Do you allow us to contact you after the pilot on your progress on these goals? [1] yes / [2] no
P032	(26)	The course will provide you with a diversity of web-based learning resources. In addition, your learning can be supported in several ways. We can outline a path for you, we can ask you to follow a specific learning path, or we can give you the freedom to follow your own path. What would be most supportive for your learning: <input type="radio"/> [1] Support me with learning resources only <input type="radio"/> [2] Support me with learning resources + an outlined path + the possibility to choose my own learning path <input type="radio"/> [3] Support me with learning resources + a path that I need to follow
		<b>Facilities</b>
P112	(27)	Do you have Internet access at home? [1] yes / [2] no

Thank you for your participation!



## Learner's post-test questionnaire

Dear participant in the ICT Pilot,

Thank you for participating in the ICT Pilot. The ICT Pilot is a pilot within the TENCompetence project, which aims at establishing an infrastructure for life-long competence development. As the infrastructure is under development, it is very important for us to evaluate how the infrastructure is used in the ICT Pilot. As part of the evaluation, we have set-up this questionnaire. Your participation in this evaluation would be highly appreciated, as feedback from the pilot participants is our main source for improving the infrastructure. We would therefore like to ask you to fill in this questionnaire.

We like to stress that by returning this questionnaire, you only grant the researchers permission to use your answers for the evaluation of the pilot. The data you provide will be made completely anonymous before data analysis. They will be used by the evaluation researchers only and not be distributed to anyone else. Thank you for your participation!

In the questionnaire, we will start by asking a few questions on your overall appreciation, and after that we will zoom in on the separate elements of the Personal Development Planner, LearnWeb and Goal Orientation Tool. The questionnaire contains 64 short questions in total; answering the questions will take about 20 minutes.

		<b>Background information</b>
E002	(1)	Date: __ / __ / 2009
E003	(2)	Start date: __ / __ / 2009
E006	(3)	Name: _____ Note: your name is needed only to combine the information you provide before and after the pilot; your answers will be processed anonymously.
E015a	(4)	How many hours did you spend on your personal development plans in the self-training sessions in the computer room? __ hours
E015b	(5)	How many hours did you spend on your personal development plans at home or elsewhere? __ hours
E016	(6)	Was your learning process hindered by technical problems? [1] Not at all / [2] hardly / [3] moderately / [4] largely / [5] completely
		<b>I. Overall appreciation</b> The first part of the questionnaire is aimed at your overall appreciation of your learning experience.
		<b>Competence development</b>
CD01	(7)	For which of the following competence profiles did you perform one or more activities? <input type="checkbox"/> [1] I*Teach <input type="checkbox"/> [10] Carving <input type="checkbox"/> [11] Folk dances
		How much have you learned with respect to the following types of competences?
E037	(8)	- Knowledge [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E038	(9)	- Functional skills, know how to do things [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E039	(10)	- Social skills [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E040	(11)	- Knowing how to behave according to the rules and values of the profession [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E041	(12)	- Knowing how to guide my future use by reflection on current practice [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E042	(13)	- Knowing how to find creative solutions for problems related to this competence [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
E043	(14)	I enjoyed this way of learning [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E044	(15)	I wish to continue developing this competence / these competencies further [1] Certainly / [2] yes / [3] perhaps, perhaps not / [4] no / [5] certainly not
		<b>Impact</b>
IMP01	(16)	When compared to the beginning of the pilot, did you already experience benefits from

		participating in the pilot? I experienced benefits: [1] (Almost) nothing / [2] little / [3] not little, not much / [4] much / [5] very much
IMP02	(17)	I have experienced benefits in the following areas: ..... .....
		<b>Appreciation of learning resources TIC</b>
		The learning resources were:
E049a	(18)	- [1] Very difficult / [2] difficult / [3] not difficult nor easy / [4] easy / [5] very easy
E050a	(19)	- [1] Very interesting / [2] interesting / [3] not interesting nor uninteresting / [4] uninteresting / [5] very uninteresting
E051a	(20)	- [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
E052a	(21)	The learning resources matched my learning needs [1] Not at all / [2] hardly / [3] moderately / [4] largely / [5] completely
		<b>Appreciation of learning resources OTHER</b>
		The learning resources were:
E049b	(22)	- [1] Very difficult / [2] difficult / [3] not difficult nor easy / [4] easy / [5] very easy
E050b	(23)	- [1] Very interesting / [2] interesting / [3] not interesting nor uninteresting / [4] uninteresting / [5] very uninteresting
E051b	(24)	- [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
E052b	(25)	The learning resources matched my learning needs [1] Not at all / [2] hardly / [3] moderately / [4] largely / [5] completely
		<b>Appreciation of control over my own learning</b>
E053	(26)	In the beginning, I quickly got an overview of the competences involved and my current proficiency level [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E054	(27)	I had a good overview on what I had done and what I had to do [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E055	(28)	I had insight into how my learning progressed [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E056	(29)	I had the feeling that I learned exactly what I wanted to learn [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E057	(30)	I had the feeling that I could plan my own learning [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E058	(31)	I felt in control of my own learning [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
		<b>Appreciation of collaboration</b>
E060	(32)	I had lively and stimulating discussions with other participants in the pilot

		[1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E061	(33)	I learned a lot from other participants in the pilots [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E062	(34)	In the larger group of all people following this course, we had a lively and stimulating discussion [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
E063	(35)	In the larger group of all people following this course, we had a lively and stimulating exchange of data and files [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
COL01	(36)	Other participants in the pilot were able to answer my questions [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
COL02	(37)	I provided useful help to other participants in the pilot [1] Agree completely / [2] agree / [3] neither agree nor disagree / [4] disagree / [5] disagree completely
		<b>II. Use of the ICT online environment</b> In the second part of the questionnaire we ask you about your use and appreciation of the several elements of the ICT online environment
		<b>Self-assessment</b>
		The ICT environment offers two possibilities for self-assessment: within the PDP tab, people can estimate their own proficiency level and assign it a level ranging between 0 and 8.
		The first three questions are about estimating one's own proficiency level within the PDP.
SA01	(38)	How much have you used the possibility to estimate your own proficiency level with a level between 0 and 8? I used this functionality for _____ of my competences: [1] None / [2] a minority / [3] half / [4] most / [5] all
SA02	(39)	In general, how easy was it for you to determine your own level with each competence? [1] Very difficult / [2] difficult / [3] not difficult nor easy / [4] easy / [5] very easy
SA03	(40)	What is your overall rating of the functionality to estimate your own proficiency level? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
		<b>Plan activities</b>
PLAC01	(41)	How did you plan your activities? Please tick all that apply. <input type="checkbox"/> [1] I let the system generate a plan, based upon my self-assessment <input type="checkbox"/> [2] I let the system generate a plan, but I didn't fill in the self-assessment
PLAC02	(42)	How did you select the next activity to perform from the list of activities? Please tick all that apply <input type="checkbox"/> [1] I performed the activities in the order in which they were listed <input type="checkbox"/> [2] I started with the activities that I thought were easiest and then progressed to the activities I thought were most difficult. <input type="checkbox"/> [3] I started with the activities that I thought were most difficult and then progressed to the activities I thought were easiest. <input type="checkbox"/> [4] I started with the activities that I liked most, and then progressed to the activities

		<p>that I liked least.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> [5] I started with the activities that I liked least, and then progressed to the activities that I liked most.</li> <li><input type="checkbox"/> [6] I first performed all activities related to one of the required competences, and then all activities of a second required competence and so on.</li> <li><input type="checkbox"/> [7] Arbitrarily, randomly</li> </ul>
		<b>Learnweb</b>
LW01	(43)	<p>What is your rating of LearnWeb in order to search new resources?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless</p>
LW02	(44)	<p>What is your rating of LearnWeb in order to share resources with your classmate/workmate?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless</p>
LW03	(45)	<p>What is your rating of LearnWeb in order to rate and evaluate resources?</p> <p>[1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless</p>
LW04	(46)	<p>For what purpose did you use LearnWeb? Please tick all that apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> [1] To find additional resources for working on my competences</li> <li><input type="checkbox"/> [2] To find other resources that would be useful for me</li> <li><input type="checkbox"/> [3] To find resources that would be useful to someone else.</li> <li><input type="checkbox"/> [4] Other purpose, namely _____</li> </ul>
LW05	(47)	<p>What would you suggest to improve Learnweb?</p> <p>_____</p> <p>_____</p>
		<p><b>Marking activities as completed</b></p> <p>The PDP allows learners to mark activities completed. Activities that are marked as completed are removed from the list of activities that you still need to complete and added to the history</p>
E095	(48)	<p>Did you make use of the possibility to mark activities as complete? If not, why not?</p> <ul style="list-style-type: none"> <li><input type="radio"/> [1] Yes</li> <li><input type="radio"/> [5] No, because I didn't notice that the possibility was available</li> <li><input type="radio"/> [2] No: I noticed that this possibility was there, but I didn't know how to use it</li> <li><input type="radio"/> [3] No, because I didn't consider marking activities as complete as helpful</li> <li><input type="radio"/> [4] No, for another reason</li> </ul>
E096	(49)	<p>When did you mark activities as complete? Please tick all that apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> [1] When I had performed the activity, regardless of how well I performed it</li> <li><input type="checkbox"/> [2] When I had performed the activity and thought that I mastered it well enough</li> <li><input type="checkbox"/> [3] When I had the feeling from the description of the activity that I mastered it, and needn't perform the activity</li> </ul>
E097	(50)	<p>How did you use the complete marks? Please tick all that apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> [1] To see how many activities I already mastered through the 'Show history' button</li> <li><input type="checkbox"/> [2] To see how many activities I still had to perform through the 'Show plan' button</li> <li><input type="checkbox"/> [3] To see how far I had progressed by comparing the number of activities</li> </ul>

		performed to the number of activities I still had to perform
E099	(51)	How would you rate the possibility to mark activities as completed? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
		<b>Blog</b>
E065	(52)	For which purposes did you use the Blog? <input type="checkbox"/> [1] I didn't use the blog <input type="checkbox"/> [2] I used it to seek help on the PDP <input type="checkbox"/> [3] I used it to be informed about the new activities <input type="checkbox"/> [4] I think it will be useful in the future when I work from home and I need some advice/help <input type="checkbox"/> [5] I think it will be useful in the future when I work from home and I want to be updated about the latest news regarding the tools and activities <input type="checkbox"/> [6] Others, namely _____
FOR01	(53)	What is your overall rating of the blog? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
FOR02	(54)	How to you value the blog as a tool to share ideas and exchange impressions? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless.
FOR03	(55)	Do you have any suggestions to improve the blog? <hr/> <hr/> <hr/>
		<b>GOT</b>
GOT01	(56)	How would you rate the possibility to define goals? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
GOT02	(57)	How would you rate the option to search for communities, competence profiles, competences, and resources ? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
GOT03	(58)	How would you rate the possibility to filter different components like competences, resources, etc.? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
GOT04	(59)	Did you use option to search by keywords ? If not, why not? <input type="radio"/> [1] Yes <input type="radio"/> [5] No, because I didn't notice that the possibility was available <input type="radio"/> [2] No: I noticed that this possibility was there, but I didn't know how to use it <input type="radio"/> [3] No, because I didn't consider it is helpful <input type="radio"/> [4] No, for another reason
GOT05	(60)	For what purpose did you use GOT? Please tick all that apply: <input type="checkbox"/> [1] To find additional resources for working on my competences <input type="checkbox"/> [2] To find other resources that would be useful for me

		<input type="checkbox"/> [3] To find resources that would be useful to someone else. <input type="checkbox"/> [4] To find other users with similar competences <input type="checkbox"/> [5] To join communities with useful resources for my education <input type="checkbox"/> [6] To define my goals <input type="checkbox"/> [7] Other purpose, namely _____
GOT06	(61)	What is your overall rating of GOT ? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very
GOT07	(62)	What would you suggest to improve GOT ? _____ _____ _____
		<b>Other tools</b>
E066	(63)	How do you value having additional resources in the system (dictionary, quick-guides, etc.)? [1] Very useful / [2] useful / [3] not useful nor not useless / [4] useless / [5] very useless
		<b>Suggestions of improvement</b>
E067	(64)	Please add any suggestion of improvement of the tools or any information you would like to communicate with regards to your experience in this pilot. _____ _____ _____ _____ _____
		_____ _____

Thank you for your participation!



## Appendix 6: Digital Cinema pilot

### A.6.1 Description of the business demonstrator

Table A.6.1 Description of the Digital Cinema pilot

Digital Cinema	
<b>Short description:</b>  <p>This pilot is a new version of the Digital Cinema pilot. Its main goal is to test the TENCompetence integrated infrastructure and pedagogical models in their ability to support competence development of busy professional in the area of Digital Cinema and 3D. The competences supported in this pilot are tool-oriented. In the first pilot the focus was on the Brainstorm software which enables the creation of Virtual Sets. In this pilot the competences are related to effectively using the new NINOS infrastructure for automatic audiovisual production created in the SALERO EU project.</p>	
<b>Name and description of the Partner</b>	FUPF TENCompetence WP4 team has implemented this pilot in collaboration with other FUPF colleagues working in the training WP of the SALERO EU project – new technologies and tools in the area of Digital Cinema.
<b>User groups</b>	<p>The user groups of this pilot are professionals of the digital cinema and 3D areas; practitioners from the commercial world, academics and future designers in graduate schools. They are typically individuals with a need to develop competences to perform their job better.</p> <p>The Brainstorm Company (developer of the Brainstorm software) and the SALERO project (EU project developing the new NINOS infrastructure) represent organizations that produce knowledge and want to manage and disseminate the knowledge delivered in the form of these tools.</p>
<b>Setting</b>	The pilot is open to any national or international person interested in the topic of the pilot. The pilot does not constrain the setting; it depends on the circumstances of each person. Participants could develop their competences through the pilot infrastructure from different settings: their workplaces, their homes, training sessions arranged by the organization producing the tools.
<b>Roles</b>	<p>The roles involved in the pilot included</p> <ul style="list-style-type: none"> <li>• developer of the GUI container linking to TENC tools: one person from UPF</li> <li>• content developer: four persons from UPF, two of them deeply involved in the SALERO project, experts on the competences needed to effectively use the NINOS infrastructure</li> <li>• competence provider: the two persons involved in the SALERO project</li> <li>• competence assessment provider: same as content developer</li> <li>• staff providing technical support: two persons, one expert</li> <li>• learners: see User Groups, the number of participants cannot be known in advance since the pilot is not directed to a specific group / community that already exists. The pilot will be publicized in different specialized forums, etc.</li> <li>• expert: same as competence providers</li> <li>• researchers and pilot evaluators: persons from UPF, UvA and OUNL</li> </ul>

<b>Tooling</b>	PDP tool (web client), TENTube and Linktool (as well as the PCM and ReCourse for the expert). Also GUI portal for integrating the tools, it was initially planned to use the ELGG platform but the approach will be adapted now to Liferay.
<b>Aim and expectation of the demonstrator</b>	From the point of view of the individual learners, they are expected to develop competences associated to the use of new tools in the area of digital cinema and 3D according to their professional needs. From the perspective of the organizations, the expectation is to train professionals in the use of their tools (so that they disseminate the knowledge they are producing) and to achieve a complete training package enhanced iteratively according to the professional feedback obtained in the pilot.
<b>Context</b>	<p>The new version of the Digital Cinema pilot derives from a collaboration with the SALERO project (<a href="http://www.salero.eu/">http://www.salero.eu/</a>). SALERO aims at making cross media-production for games, movies and broadcast faster, better and cheaper by combining computer graphics, language technology, semantic web technologies as well as content based search and retrieval.</p> <p>SALERO will define and develop 'intelligent content' for media production, consisting of multimedia objects with context-aware behaviours for self-adaptive use and delivery across different platforms. 'Intelligent Content' should enable the creation and re-use of complex, compelling media by artists who need to know little of the technical aspects of how the tools that they use actually work. Based on research into methodologies for describing, creating and finding intelligent content, SALERO will develop toolsets to create, manage, edit, retrieve and deliver content objects, addressing characters, objects, sounds, language sets, and behaviours. The toolsets developed and the concept of intelligent content will be verified by experimental productions.</p>
<b>Relevance of TENCompetence for the demonstrator context</b>	The SALERO project requires, as an “organization” producing knowledge and tools, means that promote dissemination. One important way of achieving dissemination is training. This rationale has been largely discussed in D4.1 and D4.2 in the context of Digital Cinema. SALERO is also interested in offering a training platform that enables the partners an effective way to develop competences associated to their tooling considering their situation of lifelong learners. An interesting solution to such a platform can be provided by TENCompetence infrastructure and models.
<b>Competence profiles and competences involved</b>	<p>This pilot involves the competences needed to use the tools involved in the NINOS infrastructure (see D4.3). This new competences are mostly of type functional of knowledge (as considered in the classification of Cheetham and Chivers) and are in the frame of the</p> <p><b>“Automatic Broadcasting Programme Editor”</b> competence profile:</p> <ul style="list-style-type: none"> <li>• Ability of using multiple tracks to compose the proper sequence of video and audio assets and produce an audiovisual piece</li> <li>• Ability of blending over two or more clips on different tracks in order to produce transitions, fade-in and fade-out</li> <li>• Ability of using common formats used for broadcasting in terms of resolution, frame rate and fields</li> <li>• Ability of using common codecs for video and audio compression</li> <li>• Ability of editing XML scripts that define the programme's content</li> <li>• Ability of recognizing and setting events that could be associated to automate the production</li> <li>• Ability to choose lights, cameras, characters and animations to produce the desired scene. Knowledge of the different elements of a 3D scene</li> </ul>

	<ul style="list-style-type: none"> <li>• Ability of using the different file formats for video.</li> <li>• Ability of using the different file formats for audio.</li> </ul>
<b>Training needs</b>	Videos of the integrated environment, the TENTube and the PDP will be helpful. Conclusions in this area are reported also in section A.6.4.
<b>Implementation plan</b>	The pilot was planned to start in the spring-summer of 2009. Invitation letters were sent since the spring 2009.
<b>Evaluation plan</b>	See section A.6.3

## A.6.2 Implementation

The actual implementation of the pilot was carried out as follows.

### Sprint 2009

- Development of the learning resources, creation of the competence profiles and associated competences and learning paths
- Implementation of the system, and populating it with the learning paths
- Invitation letters sent by e-mail

### Summer, fall 2009

- Implementation available to be used by learners

Previous to the implementation of the pilot an event was carried out in the context of the SALERO project. It took place at the University of Art and Design Helsinki (Taik). The event was intended for professionals in the 3D area; practitioners from the commercial world, academics and future designers in graduate schools, who were interested in learning about SALERO experimental software and also to try out the software for themselves. The object of the training session was to show tools to the participants - and gain experiences from the process for the development of materials and future training actions. For this session, FBM-UPF created a temporal information website: <http://ninoscompetence.wordpress.com/> (that was later replaced by the pilot implementation site). This website included a video that explains the main features of the Program Editor, showing some results obtained with the system. There is also a link to download Program Editor, should the viewers want to test it. A total of 17 professionals in the Digital Cinema area participated in the event. Lecturers from all Universities of Applied Science with 3D education in the greater Helsinki area attended, as well as 3D lecturers, designers and researchers from the University of Art and Design Helsinki and representatives of 3D industry.

### Invitation letter

An invitation letter was distributed to more than a hundred of colleagues in the area of Digital Cinema expected to be eventually interested in participating in the pilot.

Dear Colleagues,

The TENCompetence and the SALERO European projects have established an on-line community pilot where you can develop competences and share knowledge with other professionals around audiovisual production and automatic broadcasting using the new NINOS Platform.

The NINOS Platform is a set of tools for automatic and semi-automatic generation of audiovisual pieces. Learning materials and activities (including video tutorials, 3D characters and animations) can be addressed freely by the members of the community.

We would like to inform you about this opportunity to increase your audiovisual production competences and knowledge, and get to know and cooperate with other professionals and scholars in this domain. Registration for the community is free of charge since the pilot will be used to validate the underlying TENCompetence infrastructure and is part of the training tasks of SALERO. Your participation would be highly appreciated, as feedback is our main source for improving the infrastructure.

You can find more information and register to the community at: <http://pilot-ninos.upf.edu>

With kind regards,

For screenshots and videos please follow the links:

<http://pilot-ninos.upf.edu/ninosweb/imgs/programEditor%20ScreenShot.jpg>

[http://pilot-ninos.upf.edu/ninosweb/imgs/ProgramEditor\\_video.mov](http://pilot-ninos.upf.edu/ninosweb/imgs/ProgramEditor_video.mov)

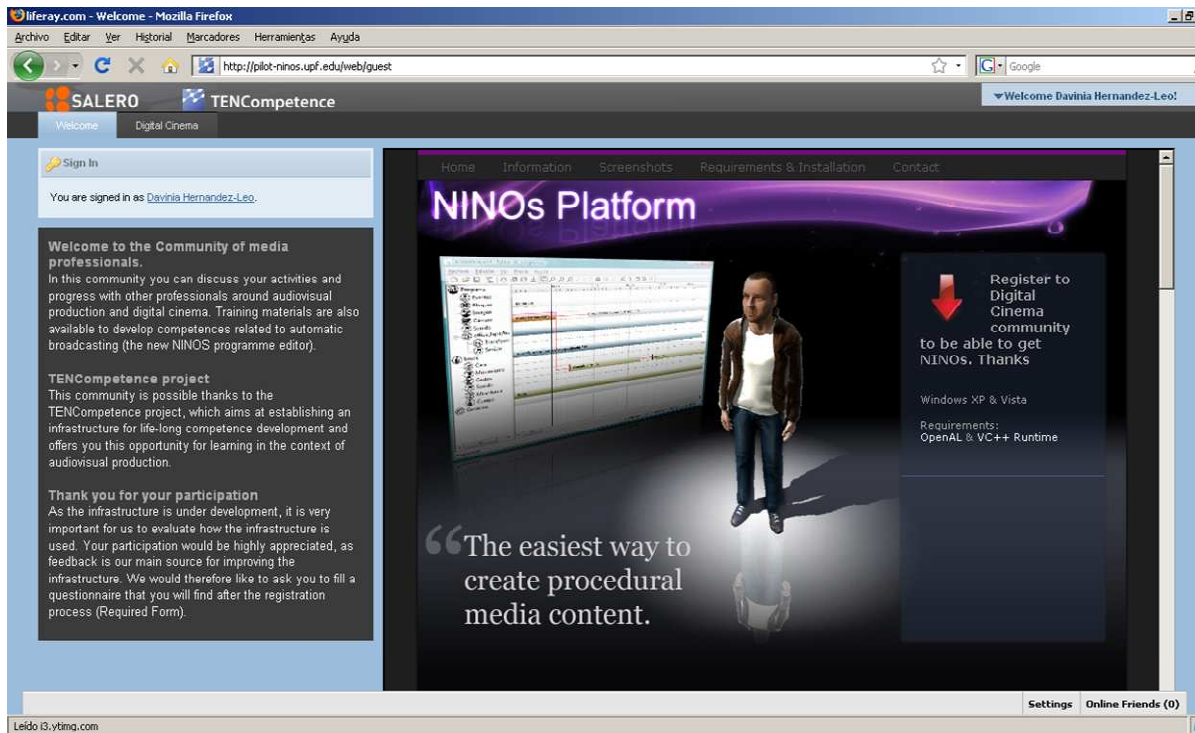


### Actual number of participants

- Participants/users: 3 learners developing the “Automatic Broadcasting Programme Editor” competence profile. On average, the users have worked 6 hours on their competence development plans.
- For other roles involved in the pilot check Table A.6.1

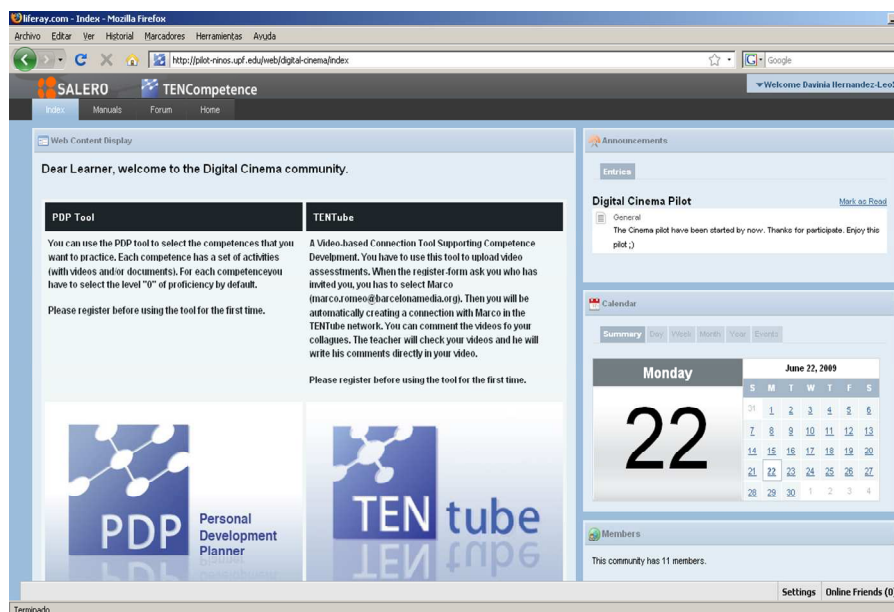
### Tools used

The LifeRay portal was used for integrating the TENCompetence tools (<http://pilot-ninos.upf.edu/>). In the main page (see Figure A.6.1) the users found the main information about the pilot (the NINOS platform, the Digital Cinema Community, TENCompetence project).



**Figure A.6.1 Digital Cinema LifeRay portal**

After introducing their username and password participants can access to the main page of the community (the first time users accessed the system they had to answer a pre-test). In the main page of the Digital Cinema Community the participants found information about the TENCompetence tools integrated in this portal. These tools are: the PDP (Personal Development Planner) tool (web client) and TENTube. They found manuals with information of the tools, the calendar of the pilot, announcements and a portlet to add participants as friends (see Figure A.6.2).



**Figure A.6.2 Digital Cinema Community main page**



WebPDP (*Personal Development Planner*): This tool was used by the content developers to create some activities and to associate the resources and the activities to the different competences. The participants used the Web PDP as the central tool for planning their learning process and accessing the different activities available in the pilot. In Figure A.6.3 an example of selection of activities related with a competence is shown. After creating their personal development plan, the users could perform the activities. Figure A.6.4 shows an example of a video available in one of the activities.

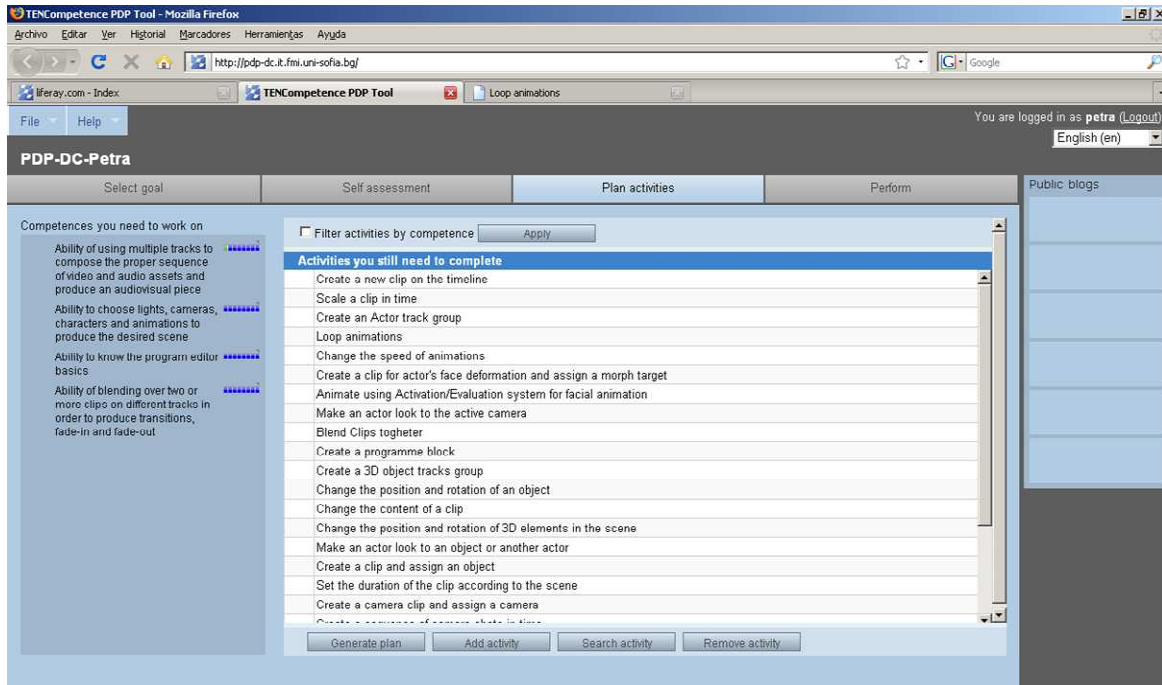


Figure A.6.3. Personal Development Plan Tool with the competences and associated activities

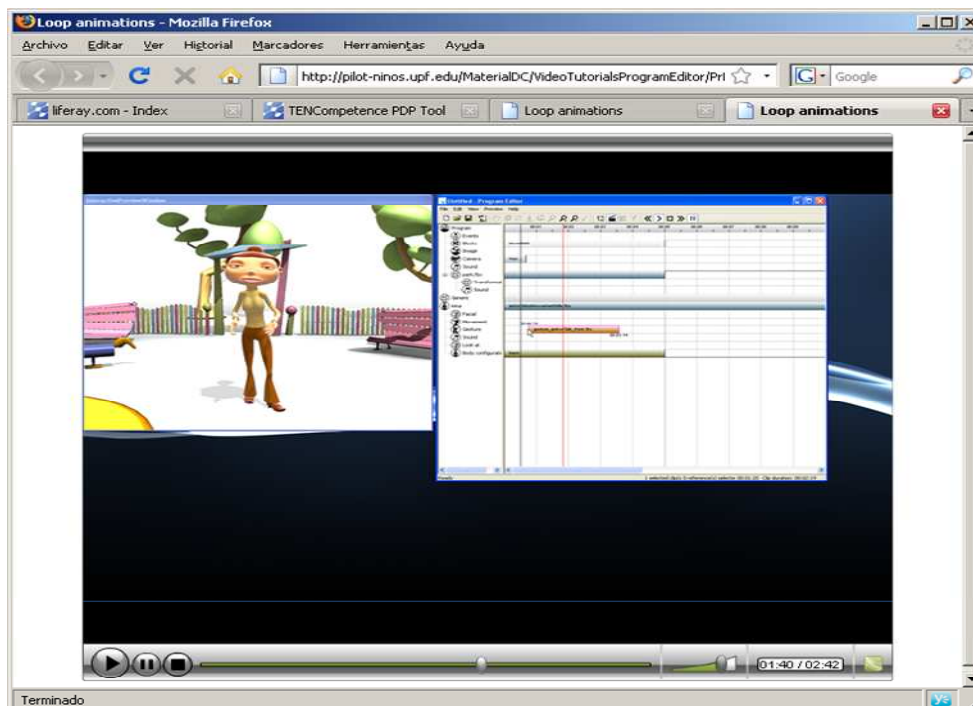


Figure A.6.4 Learning material accessible from an activity in the PDP

TENTube: This tool was used to share the videos created with NINOS between participants of the Digital Cinema community. The participants could create their own network of friends to share, comment and visualize videos (see an example Figure A.6.4).



Figure A.6.4 TENTube tool, network of friends

The participants also have the possibility of using a LifeRay forum (to discuss about the activities).

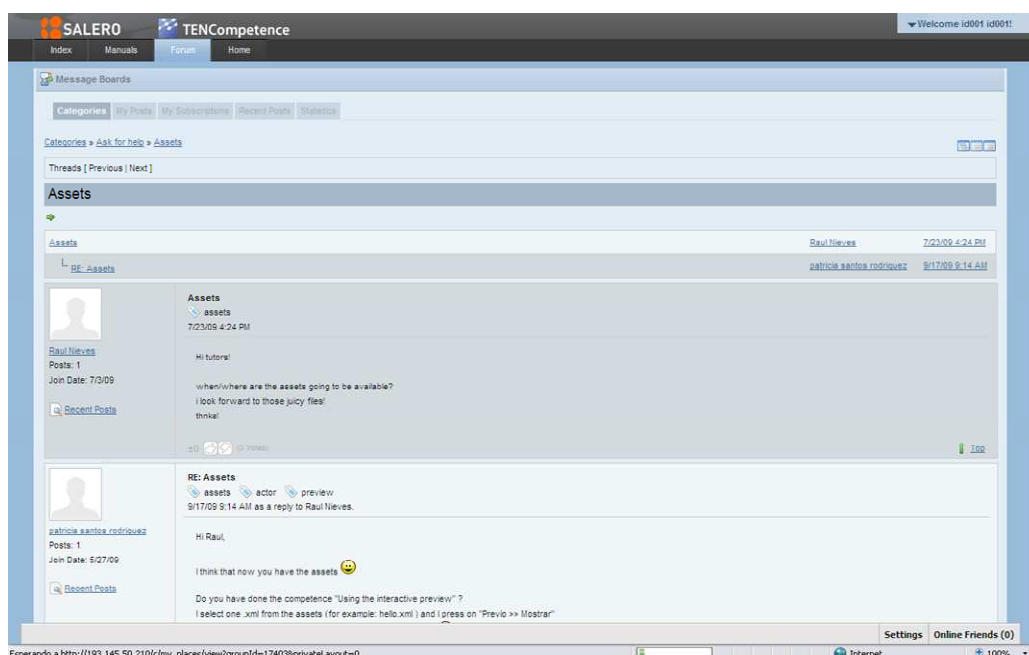


Figure A.6.5 LifeRay forum tool



### A.6.3 Evaluation methodology

Table A.6.2 indicates the different data sources considered to evaluate the pilot according to the evaluation plan (see TENCompetence D4.3). A mixed evaluation methodology, combining qualitative and quantitative data gathering techniques, was followed. Quantitative data were collected in two questionnaires: a pre-test answered at the launch of the pilot dealing with the participants' characteristics and expectations of the pilot; a post-test evaluation of the pilot, which was completed by the participants once the pilot was finished. Given the number of learners actually participating in the pilot, a semi-structured interview was conducted to collect further qualitative data. Two different researchers have participated in the analysis and interpretation of the data. The results were compared and discussed among the researchers. The results are discussed in the next section

**Table A.6.2 Data sources for the evaluation of the Digital Cinema pilot and labels used in the text to quote them**

Data source	Type of data	Labels
<i>Pre-test, post-test questionnaires</i>	Quantitative and qualitative participant characteristics, expectations and evaluation.	[pre-test] [post-test]
<i>Semi-structured interviews with participants</i>	Qualitative: participants' opinions emerging in a discussion group with the participants	[interview]

### A.6.4 Evaluation results

#### General

A total of 3 participants who started the pilot completed the pre-test and post-test questionnaires. The profile of the participants was: 2 men and 1 woman with an average of 25 years old. The three of them are Spanish. They have technical skills (the 3 participants were computer science engineers interested in the area of Digital Cinema) but without previous knowledge about the Automatic Broadcasting Programme Editor competence profile [pre-test].

The 3 participants spent as average 6 hours in their personal development plans. The participants thought that they would have spent 35 hours if they complete all the activities available in the suggested learning path [post-test].

In the interview the participants appreciated the look and feel of the implemented site, however they indicated that the information contained in the registration page should be better integrated. The windows where was contained the main information about the ninos-platform had two scroll-bars. After introducing the username and password, the first time that the users entered to the system it showed the pre-test. The participants valued positively this automatic functionality. In general, the steps that the users had to follow in order to access to the DC community the first time help them in understanding the tooling available and where they were located (tabs) [interview].

#### Section Digital Cinema Community

The "Announcements" was a LifeRay portlet users could find in the main page of the community. Participants indicated that it is very useful to be kept informed by competences providers about events or activities [interview].

The manuals available in the site about the TENCompetence tools were quite helpful for the participants [interview], however one of them also suggested that it would have been very

useful to have also in the main page a “Getting started” guide (or/and a video) in order to become familiar with the LifeRay TENCompetence integrated use. It should also explain briefly and clearly the TENCompetence nomenclature and main concepts (such as “PDP”).

All the participants agreed that the forum is useful in the Digital Cinema community. A suggestion of improvement was that it would be even more useful if the posts contained in the PDP would be automatically published in the LifeRay forum [interview].

#### *PDP application*

All the participants had a good overview of what they had done and what they had to do (when talking about their personal development plans) [post-test]. One participant indicated that in the beginning he had problems creating his plan. In particular, he had problems trying to eliminate the plans that he was creating and mentioned that he needed to create 3 different users in the PDP tool to fix his problems [interview].

The participants indicated that the PDP tool presented some limitations when supporting them in performing their personal plan [post-test]. These limitations had to do with the organization of competences and activities. Though the participants said that they consider the PDP suggest them a correct order of activities, they asked for filtering options that would enable them to order the competences (and activities) according to different criteria, such as from basic to advanced competences [interview].

The general appreciation of the learning resources available in the activities was that the videos were very useful to learn how to use the NINOS tools, but additional interactive activities would have been also welcome (e.g., interactive self-assessment tests). The participants also admitted that partial support from experts in the NINOS tools would have been also appreciated [interview].

All the participants use the “select as complete / show history” of the PDP. They find it very helpful to support them to control their learning progress [post-test]. They also said to have missed the possibility of completing self-assessment test to identify their proficiency levels [interview].

#### *TenTube application*

Participants did not use this tool finally [post-test] because it did not contain learning materials bound to the activities required in their competence development plan. Besides, they did not create any video to be shared in the community. However, they do appreciate the tool as very useful for a Digital Cinema community. They indicate that tool has an enormous potential to share solutions and to find and comment the videos of other colleagues [interview].

#### *Other technical issues*

The multiple registration needed to use the different tools (LifeRay, PDP, TENCompetence) hindered the learning process and more importantly, the access of potential participants to the system [interview]. This was the main problem identified by the competence and activities provider when trying to understand the low level of success of the pilot in terms of number of participants. Despite the technical problems the 3 participants experienced learning benefits from their participation in the pilot and they would like to continue developing their competences further using the pilot implementation [post-test].

#### *Suggestions of improvement*

Besides the already mentioned improvement, the participants also explained that they had to complete many steps in order to achieve their intentions (practicing an activity) [post-test]. This is suggested to be taken into account in new implementations of the system.

### **A.6.5 Discussion**

The Digital Cinema pilot has two main singularities that differentiate it from the rest of pilots and business demonstrators: 1) there is not a community of learners in the area already built (or easy to build), 2) the competences are product-oriented (learning how to use new specific tools). This scenario together with the technical problem of multiple registration and log-in needed required to use the system have made it very difficult to attract individuals to actively participate in the pilot.

However, the evaluation results are positive indicating that some characteristics of the implemented system facilitate competence development in this area. These positive aspects are: the integration of the tooling in a web-based portal, the support of social interaction through TENTube and the Liferay forum, the creation of personal competence plans that can be managed or control with functionality such “mark as complete /show history” and the available learning resources. Suggestions of improvement include the provision of user manuals or videos covering the integrated infrastructure (particularized for the specific pilot implementation) and of a tighter integration of TENCompetence tooling into Liferay (no multiple registration, PDP blog vs. Liferay forum, etc.)

### **A.6.6 Data collection instruments**

#### **Interview**

Categories taken into account in the semi-structured interview are:

Main Page:

1. Appreciation of the Main Page:
2. Did you have problems identifying the tab “Digital Cinema”?
3. Answering the Pre-test

Section Digital Cinema Community

4. Appreciation of main page of the Digital Cinema Community

Section Guides:

5. Do you think that the Guides section was useful?

Section Forum:

6. Appreciation of the forum tool

PDP application:

7. Did you have any problem creating you personal competence plan?
8. Did you have problems selecting the competences that you wanted to practice?
9. Appreciation of the content of the activities
10. Did you miss to have the possibility of performing a self-assessment test?

TenTube application:

11. Did you use this tool?
12. Appreciation of the TenTube tool

#### **Post-test**

- I. How many hours did you spend on your personal development plans in the self-training sessions in the computer room?

- II. How many hours did you expect to spend on your personal development plans in the self-training sessions in the computer room?
- III. Was your learning process hindered by technical problems?
- IV. When compared to the beginning of the pilot, did you already experience benefits from participating in the pilot?
- V. Appreciation of control over my own learning
- VI. Did you make use of the possibility to mark activities as complete? If not, why not?
- VII. Suggestions of improvement

## Appendix 7: MIZAR Multimedia Business Demonstrator

### A.7.1 Description of the business demonstrator

Table A.7.1 Description of the MIZAR Multimedia Business Demonstrator

MIZAR Multimedia Business Demonstrator	
<p>Short description:</p> <p>FBM-UPF collaborates with MIZAR multimedia SME to run a business demonstrator. MIZAR (<a href="http://www.mizarmultimedia.com/">http://www.mizarmultimedia.com/</a>) is a content provider devoted to educational purposes (e.g., one of their specializations is around "Spanish language for business"). The aim is to extend their business model by also delivering (using the TENCompetence services) competence development programs. The applicability and sustainability of the business model will be demonstrated by means of a pilot (a business demonstrator) with an external (client) organization.</p>	
Name and description of the Associate Partner	<p><b>Mizar Multimedia</b> is an SME dedicated to producing and disseminating cultural and long life learning contents and services with a multimedia perspective.</p> <p><b>Mizar Multimedia</b> is specialized in education and communication. It has the capacities to create and develop contents and digital multimedia, multi-platforms and multilingual services for training purposes. Mizar has contributed to successful developments and international strategies for clients by optimizing their uses of new media for learning purposes.</p> <p><b>Among its principal activities, there is the development of multimedia editorial products:</b> develops enriched books for learning, especially for language learning, by creating synergies between different supports to make learning easy through practical means. Mizar uses the values and opportunities of books and combines them with technologies, interactive supports and internet platforms.</p> <p>It has developed <b>international language learning methods</b> for learning SPANISH: <i>Curso Es Español</i> for Espasa, <i>Es Tu ritmo</i> for Espasa and adapted it to Italy for Lang Ed., <i>Curso de Español</i> for Brazil Barsa Planeta, or the course <i>Conecta</i> for Zanichelli ed., <i>Mucho Gusto</i> for Lang Paravia Mondadori, etc.), and complementary materials (<i>Lecturas graduadas</i> collection for Espasa, <i>Español Es Fácil</i> Collection, for Espasa, <i>Spanish OK</i>, <i>Spanish Made Simple</i>), Spanish e-Learning platform for Espasa (<a href="http://spanishfirst.com">spanishfirst.com</a>). ENGLISH courses, TV English course (<i>Hoobs English</i>). Moreover, Mizar has developed children's multi-platform encyclopedias (<i>Enciclopedia Planeta Hoobs</i>, Enc. Temática del Estudiante).</p> <p><b>Tutor training e-learning:</b> uses internet and adapts new technologies to <i>educational</i> purposes and related services. Mizar develops didactic interactive environments for tutor training, planning, presenting in classrooms, and evaluation tools. It has developed the educational platform and contents for training tutors and students. Mizar develops contents for research, continuing education materials, activities, guides and recommendations for tutors and parents.</p>

	<b>Television and multimedia for learning:</b> develops educational and cultural productions for learning, interactive television with the Internet as a complementary tool for enriching and strengthening television contents, as well as teaching critical analysis skills for facing the media.
User groups	Mizar wants to develop the platform for the lifelong learning of the Spanish that gathers the opportunities that the new technologies offer, with an approach for competences, adapting them to the different persons and situations, and from a more multicultural point of view. The demonstrator will be support professionals with Spanish speaking businesses, community organizations, restaurants by developing a customized program to facilitate competence development in line with their business needs.
Setting	Distance learning scenario, with working groups, see context.
Roles	Tentative roles are: requirements analyst, developer adapting and configuring the infrastructure, software tester, pilot designers and evaluators, trainer, public relations officer, pedagogical and content experts, learning designer, content developer, business manager, competence provider, competence assessment provider.
Tooling	See A.7.2 section
Aim and expectation of the demonstrator	Since Mizar Multimedia SME started its activity, it has developed and centred its interest on the lifelong learning by means of developing materials and dissemination for other companies and editorials, and now it has the opportunity, with the TENCompetence new tools, to develop its own service for further dissemination and consolidate its own language courses.
Context	<p><b>Value proposition</b></p> <p>The knowledge of languages has turned into one of the basic skills for all the persons into a world increasingly global. The Spanish is, besides, one of the languages of major expansion in the whole world. An increase of the interest for the Spanish language has been stated, especially in countries like Brazil, the United States, United Kingdom or, in general, the Asian continent. Therefore, there is an increase of the demand around materials and services for the learning of the Spanish using the new technologies. The language learning market presents new challenges: it needs to be continuously adapted to the concrete requirements of the lifelong learners (segmentation and adjustment to the personnel and professional needs, and not only as an answer to the formal educational system), from a multicultural perspective (content with a multicultural vision that answers to the current globalization), and it must focus on the development of a few concrete competences to solve specific situations (abilities to manage oneself in different contexts and sectors).</p> <p>Mizar wants to launch new lines of learning products/ services adapted to contexts and specific <i>addressees</i> (professional, business used in systems of health, etc.). In this sense, Mizar needs to have new platforms enabling the distribution of its contents and putting them at the disposal of apprentices with specific ends.</p> <p>At the same time, Mizar needs, for its commercial expansion to offer services of training and orientation to the trainers/tutors/tutors who want to use the contents and tools of Mizar. The tutors and trainers are mediating among the students and the didactic contents put at their disposal. But, often, they have not the operative and cognitive capacities necessary for its use and management. From a proper training of the tutors in these aspects it is expected a general improvement of the system and a better distribution and marketing of the contents.</p> <p>Mizar wants to offer, as complement and reinforcement of its offer, an on-</p>

	<p>line system for Spanish tutors' training in the methods created and designed by Mizar. This system would be offered as one more commercial advantage, and a factor of productivity, the Mizar's commercial partnerships that distribute its products all over the world.</p> <p>A pilot experience is being planned with a partner collaborator of Mizar, HDSC from the United States of America (<a href="http://www.hdsc.us">http://www.hdsc.us</a>), who develops immersion language programs (called SpeakNow! Spanish) en New Hampshire, USA that involve industry specific application with culturally specific interactions.</p> <p>Mizar collaborates in SpeakNow! Spanish, which offers a variety of lessons, workshops, seminars, and professional coaching sessions throughout the year, as an integral part of its lifelong learning and training duty. Topics include Language Development, Media and Communication, and a variety of specific topics always in Spanish language, answering the particular concerns or their costumers. Currently the learning programs require personal presence and they are presented with multimedia and multiplatform materials. These materials answer the specific needs and competences needed to be developed by the attendants (as individuals and as a company worker).</p> <p>The development of the services platform for lifelong learning with TENCompetence tools is a new <b>opportunity for offering specific Spanish training services to tutors and to students with specific needs, not only as a support to the face-to-face activities, but also as a system to improve the distribution and dissemination of contents that Mizar has already developed</b>. In conclusion, it will give continuity to the work done and it will become a loyalty tool offering complementary services to the existent ones.</p> <p>The basic values for which we seek with the development of the demonstrator are:</p> <ul style="list-style-type: none"> <li>· <b>flexibility</b>, content, product, technological, and service adaptability for learning requirements and competencies development in different media and cultural contexts;</li> <li>· <b>commitment</b> to the <i>client/ user</i>, knowing their social and professional needs, and to provide the knowledge in order to obtain the best results in the learning process;</li> <li>· <b>reliability</b>, quality is the basic premise for developing the demonstrator;</li> <li>· <b>innovation</b>, the capacity to develop original projects with concrete answers to the needs of the learners by using the new technologies appropriate for a global context in today's society without losing sight of the local context. It promotes web-content development (web 2.0), so it reinforces ICTs among the target (digital literacy).</li> </ul> <p><b>Market segment</b></p> <p><u>Persons that wish to learn Spanish Language communication skills</u>, including cultural expectations, for specific contexts, through interactive, adult-centered, pedagogy.</p> <p>And, second but not less important, <u>Spanish tutors and trainers</u> who need to use Spanish as second language methods and contents.</p> <p>The market segmentation will be essential: recognizing that different market segments and the different needs they have in order to define and organize the competences. People that want to develop their competence in Spanish language for a specific context and purpose (E.g., professional development, services, medical attendance, social development) that is to be able to apply their knowledge in a manner consistent with cultural expectations. Even if it</p>
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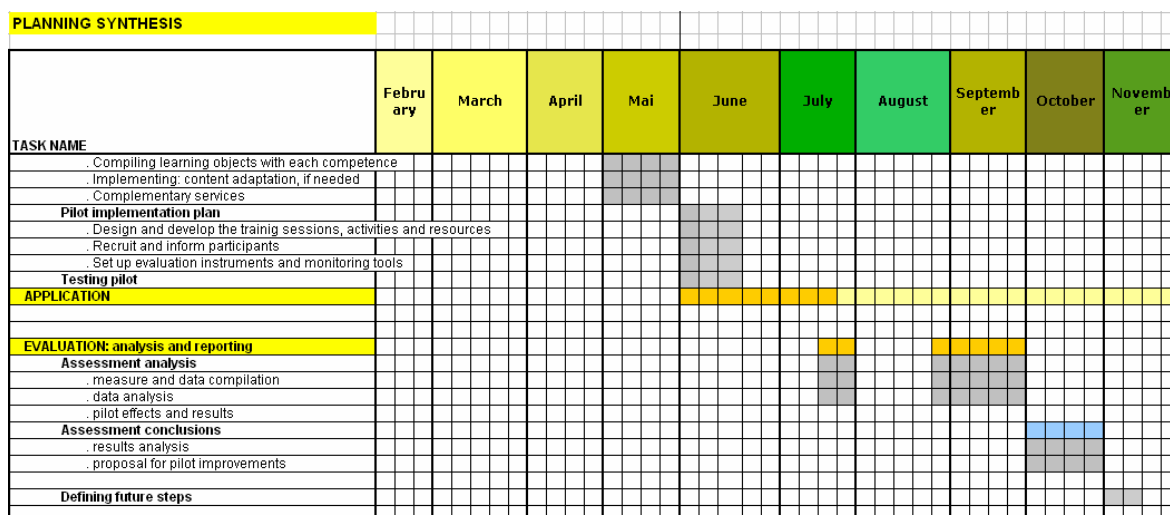
	<p>may be open to anyone interested around the world, the demonstrator is thought for the persons who attended to the SpeakNow! Spanish Programs. In this case, we have a direct target of around 300 students every year, and around 50 business companies and institutions that have been interested in the program. It would be offered as a lifelong Spanish learning service to the people and companies that has been participating in the programs (whose face-to-face training cost vary from \$75 to \$1,500 depending on length and time and program).</p> <p>From the experience Mizar has, the following core targets (individual or through the company) have been defined (examples of some customized competence “programs” by sectors that could be offered):</p> <ul style="list-style-type: none"> <li>· Healthcare area</li> <li>· Law</li> <li>· General Business</li> <li>· Tourism area: travel, tourism, hospitality, restaurant services, etc.</li> <li>· Art</li> <li>· Import / export business industries / companies</li> <li>· Spanish tutors: the growth of the Spanish all over the world makes that a lot of Spanish tutors need more training, support and materials.</li> </ul> <p>In general, Mizar focuses on adult persons mainly, formal and informal teams or individuals, and on formal and informal learning and training.</p> <p><b>Competition</b></p> <p>Most important <b>competitors</b> are the publishing companies, the academies, the distance and/or online Spanish courses and resources.</p> <p><u>Publishing companies</u> are, at the same time, potential customers of Mizar. So Mizar would reinforce its differential value in comparison with other existent methods.</p> <p><u>Academies</u> are usually based in the face-to-face learning, so Mizar can complement the learning process.</p> <p><u>Distance or online Spanish courses and</u> resources are usually does not offer neither UoL for specific needs, nor the chance to use regular methods as support.</p> <p><b>Competitive values</b></p> <p>There are many differential activities that will help Mizar to create <b>special value and competitive advantages</b>:</p> <ul style="list-style-type: none"> <li>· Knowledge in specific learning Spanish materials development</li> <li>· Linguistic team with more than 8 years of experience</li> <li>· Focus in the development of competences</li> <li>· Existing contents that will help to centre the efforts in providing and adapting the TENCompetence services to the target and the purpose, so that the activities will create value that exceeds the costs of the service</li> <li>· Experience on transforming the contents into a lifelong learning service organized in competences adapted to specific contexts</li> <li>· Marketing &amp; Sales activities have the advantage of a click &amp; brick strategy: <ul style="list-style-type: none"> <li>o Channel selection: <ul style="list-style-type: none"> <li>§ Open channel through internet</li> <li>§ Promoting awareness among specific targets by means of “presential” courses, people interested on consolidating their learning</li> </ul> </li> <li>o Lifelong buyers interests</li> <li>o Business and sectorial targeting for communicational purposes</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>o Focus on TENCompetence demonstrator as a service to maintain and supply customer / learner support for their needs of Spanish for specific contexts</li> </ul> <p><b>Revenue generation and costs-revenues</b> will be generated in two lines:</p> <ul style="list-style-type: none"> <li>- Focus in complementary services is the means to consolidate the sales and the use of contents and Spanish methods that Mizar has in the different markets in the world: support and reinforce the existing offers. So that it will be a differential value to the publishing houses that commercialize Mizar methods.</li> <li>- Commercial (eventually) offer for subscription service: <ul style="list-style-type: none"> <li>o More materials (for tutors)</li> <li>o Units of learning and contents to go further in their learning process</li> <li>o Specific contents for specific contexts of use of the Spanish language</li> </ul> </li> </ul> <p><b>Cost structure</b> will take advantage of structure that Mizar already has for the Spanish methods development, reinforced with technical developer and webmaster for the following.</p> <p>Mizar already has a linguistic team to develop their Spanish methods and contents, which includes linguists, educationalists, designers and multimedia experts so the demonstrator development will become a part of their job to create synergies among the contents and services offered.</p> <p>In summary, <b>Mizar's competitive strategy</b> is based on three axes:</p> <ul style="list-style-type: none"> <li>* <u>To give a differential value for its Spanish methods</u> and a value that will make Mizar's methods more complete and updated.</li> <li>* <u>To focus on a niche</u> with high interest:</li> </ul> <p>Learners with specific needs and contexts, that means to adapt the learning process to the different contexts of use. That means a different offer (different in objectives, objects of learning, time and context of practise and development).</p> <p>Tutors and trainers because it recognizes the important role that they play in lifelong learning strategies.</p> <ul style="list-style-type: none"> <li>* <u>To promote the loyalty</u> of the learners who already followed the SpeakNow Spanish! In other words, to take advantage of their participation in the program in order to attract their interest to improve their proficiency levels around the Spanish Language competences.</li> </ul>
Business model / case shown in the demonstrator	Mizar has created general methods of Spanish learning for foreigners, both online and offline, mainly for other companies. TENCompetence provides Mizar to add a differential value in their chain of value. Content suppliers' training will improve the current chain of Mizar's value, and, consequently, its value for its commercial associates, clients and related institutions reinforcing its position on the market. The use of the services and tools of TENCompetence can allow the distribution and management such resources for specific purposes and singular contexts of lifelong learning and overcoming the barriers of space and distribution, as well as reinforcing the competitive current strategy (See Figure in D4.5).
Business / valorization opportunities	The use of the services and tools of TENCompetence can allow the distribution and management such resources for specific purposes and singular contexts of lifelong learning and overcoming the barriers of space and distribution, as well as reinforcing the competitive current strategy.
Relevance of TENCompetence for the demonstrator context	(See context)

Competence profiles and competences involved	(See table A.7.2)
Training needs	Mizar staff requires training on the TENCompetence tools. They are mainly creators of contents, which need to be adapted to the new infrastructure. Besides, manuals and training sessions initiating users in the use of the TENCompetence infrastructure are also needed for trainers (tutors, tutors, etc.) and the learners.
Implementation plan	<p>The details are currently under development. However, the implementation plan will include the following tasks:</p> <ul style="list-style-type: none"> <li>• Become more familiar with the TENCompetence concept and infrastructure</li> <li>• Select the usage profiles</li> <li>• Define the specific setting, and competence profiles (organisations, professions, sectors, persons)</li> <li>• Create the learning paths (competence development plans/programs) for each competence. This includes the elaboration of the learning units and activities and the links to the Mizar content (learning resources)</li> <li>• Define the assessment approach, adapting and implementing it for a person or a group / team.</li> <li>• Specify the evaluation plan</li> <li>• Configure and populate the infrastructure (TENCompetence services, and portal/GUI container)</li> <li>• Execution with the actual users</li> <li>• Make follow-up of the tools and services, adaptability to users.</li> <li>• Perform the evaluation</li> </ul>
Evaluation plan	(See section A.7.3)
Could you mention one or more results with which you would consider your demonstrator a success?	Identify a potentially successful business model for MIZAR.

### A.7.2 Implementation

Figure A.7.1 shows the first implementation plan. Due to difficulties with the availability of the tools and the restrictions imposed by the USA calendars, all the process was delayed one month from the initial plan. Find below the actual plan carried out.



**Figure A.7.1. Screenshot of the PDP activities for a learner**

The implementation was actually carried out according to the plan of the Business demonstration as follows:

**April 2009:** study of the TENCompetence concept and infrastructure and familiarization with the services and possibilities that it offers. 3 Mizar Workers were involved in the process, which was supported by 3 training sessions of the TENCompetence tools and Liferay services provided by 2 UPF experts for 2 Mizar workers.

**May 2009:** selection of the usage profiles to be implemented and definition of the specific setting and competence profiles (organizations, professions, sectors, persons). 3 workers from Mizar and 3 UPF experts were involved in the process.

**June 2009:** creation of the learning paths (competence development plans/programs) for each competence. This included the elaboration of the learning units and activities and the links to the Mizar content (learning resources).

**July 2009 until 20th:** configuration and population of the infrastructure (TENCompetence services, and portal/GUI container). It included the implementation of content adaptation and complementary services in LifeRay.

Recruitment of participants (tutors and students) and definition of the BD period according to the USA calendar.

Definition of the assessment approach, adapting and implementing it for a person or a group / team.

**20<sup>th</sup> July – 10<sup>th</sup> August 2009:** testing and training period of the TENCompetence infrastructure for the tutors involved in the business demonstrator involving 1 Mizar worker and 2 UPF experts.

Specification of the evaluation plan.

**30<sup>st</sup> August -5<sup>th</sup> September 2009:** registration process of the participants in the pilot.

Informative mails and sessions for the participants (students).

**10th March – 30th September 2009:** duration of the pilot

The pilot started one month later than planned because of the academic calendar in USA, including holiday and free days. The participants had 1 session per week supported by the tutor for solving technical and course questions. The last week also included an evaluation period in which the participants (tutors and students) had to answer a questionnaire.

**October 2009:** data collection for evaluation.

### Registration of the participants

The registration period took place throughout the first week of September. A set of selected students were informed of the possibility to take part in the business demonstrator and 12 persons registered the course: 10 with a student role and 2 with a tutor role. The registration process was carried out by an UPF expert and a Mizar worker.

### Actual number of participants

- Participants/users: 12 learners: 10 with a student role developing Spanish related competences and 2 with a tutor role developing teaching competences for Spanish classes. All the participants started the course but only 9 of them completed it (See *Results of the experience* for reasons).
- 7 experts received a TENCompetence training in order to provide technical and content related support to the users in the different weekly sessions (note that 6 out of the 7 experts did not participate in the 1<sup>st</sup> pilot.)
- 1 Mizar worker received a TENCompetence training in order to provide technical and content related support to those with student role. The same worker trained one of the learners with tutor role for giving support to the rest of students in the course.
- There were 2 training providers (FBM-UPF)

### Training

- Training for the experts on 20<sup>th</sup> August 2009 (1h training)  
Informal explanation of the final infrastructure and tooling. It included exploration of the contents and use of Web PDP and other components.
- Training for the learner with tutor role involved in the course management in USA during 1<sup>st</sup> week of September.  
The Mizar expert and one UPF expert maintained during a week informal online video conferences, calls and e-mail about the final infrastructure and tooling.
- Training for learners with student role 10<sup>th</sup> September(1h)  
11 participants received training of the final infrastructure including the Web PDP and the rest of the components in LifeRay.  
Different user guides were created to help the users to get familiar with the TENCompetence tooling. The participants had the possibility to look up the following guides on the Mizar Liferay home page:
  - Liferay student guide (Including explanation on how to access to the Web PDP, to use the forum, dictionaries and training guides).
  - Liferay tutor guide (Including explanation on how to access to the Web PDP, to use the forum, dictionaries and training guides).
  - Web PDP user guide.

It was also included in the Liferay two forums for introduce questions about the platform or about the content in the courses.

### Dates of actual implementation

10/09/2009: Start of the course  
30/09/2009: End of the course

## Workload of learners

On average, the users have worked 6.7 hours on the self-training sessions in the computer room and around 48% of the participants who had Internet at home spent an average 10.9 hours on their competence development plans. The participants also used the tool during the free access hours of the computer room and after the end of the pilot.

## Tools used

The implementation was actually carried out according to requisites of Mizar people. In this pilot there were two kinds of users: tutors and learners. There were used mainly two tools from the TENCompetence, the PCM and the Web PDP and modules from LifeRay. In the following we explain in detail how these tools were used.

**PCM (Personal Competence Management):** This tool was used by the experts to create the Competence Profiles and Competences.

**Web PDP (Personal Development Plan):** This tool was used by the content developers to create some activities and to associate the resources and the activities to the different competences. The participants used the Web PDP as the central tool for planning their learning process and accessing the different activities available in the course (See Figure A.7.2 and Figure A.7.3). Learners have access to a PDP and tutors have both access to the learners PDP and access to an exclusive PDP for them (was necessary the configuration of two separate PDP web tool for this pilot).

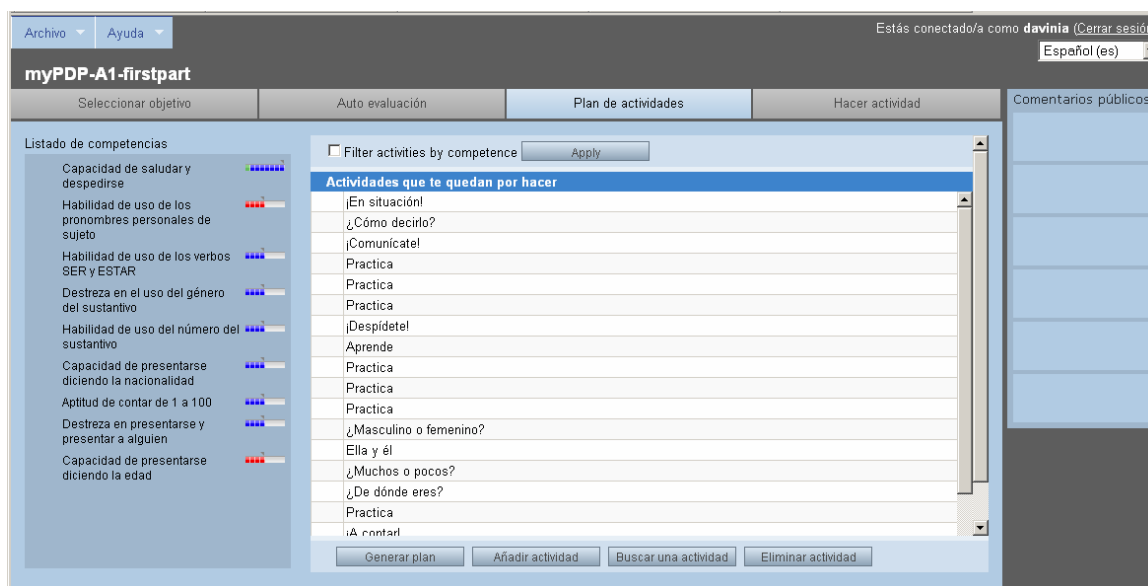


Figure A7.2. Screenshot of the PDP activities for a learner with a learner role

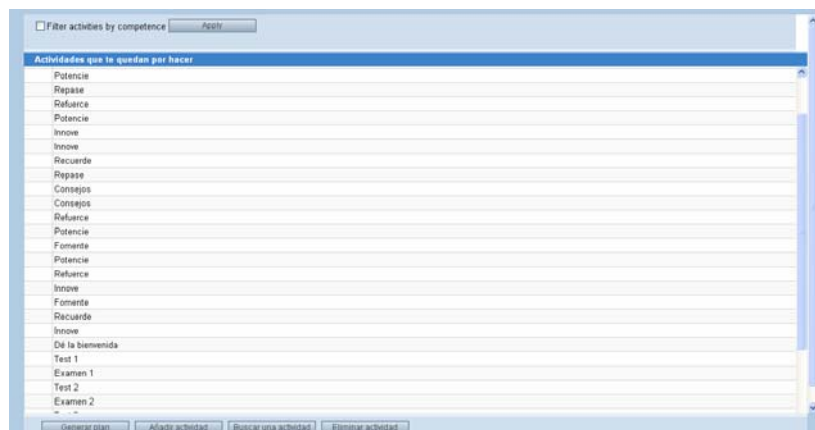


Figure A.7.3. Screenshot of the PDP activities for a learner with a tutor role

In the LifeRay platform 5 tabs were prepared:

“Mundo Hispano” (*Hispanic world*): This page was the welcome page (See Figure A.7.4). In the welcome page they allocated some portlets with all kind of information related to the Hispanic world.



Figure A.7.4. Screenshot of the Welcome Page

“Guías de Viaje” (*Travel guides*): This page has information for visitants about Barcelona and Madrid (See Figure A.7.5).



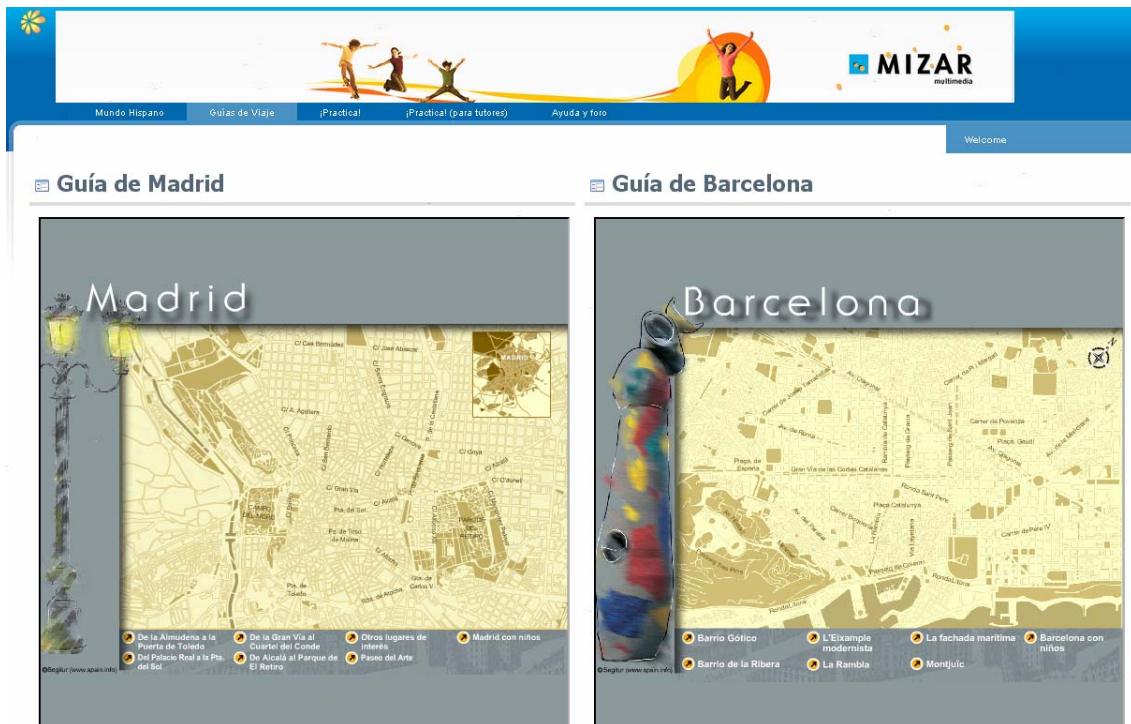


Figure A.7.5. Screenshot of Travel guides Page

“¡Practica!” (¡Practice!, ¡experience!): Which open on a new window the learner’s web PDP

“¡Practica! (para tutores)” (same as student ¡Practica! but only for tutors): That open on a new window the tutor’s web PDP (only visible by participants enrolled on the tutors role).

“Ayuda y Foro”( Help and Forum) that includes a document library portlet with all TENCompetence Tool’s FAQ plus other staff documents related to the pilot, and a forum portlet to ask for help o post bugs or errors founded on the web (See Figure A.7.6).



Figure A.7.6. Screenshot of Forum and FAQ

### A.7.3 Evaluation methodology

Table A.7.2 indicates the different data sources considered to evaluate the pilot according to the evaluation plan. Quantitative data were collected from two questionnaires: a pre-test answered at the launch of the pilot. The questionnaire dealt with the participants’ characteristics and their

expectations of the pilot; a post-test evaluation of the pilot, which was completed by the participants the last week of the experience (see Appendix A.7.6.). The records from Google Analytics provide quantitative data for the analysis. Other observations and incidences about the pilot management were collected during the experience in a grid created in Google Docs. This grid was updated by one expert from Mizar and another one from the UPF. It was also used for reporting information exchanged by e-mail and calls between one of the tutor learners and one expert from Mizar. The results from the analysis are discussed in the next section.

**Table A.7.2. Data sources for the evaluation of the Mizar business demonstrator**

Data source	Type of data
<i>Pre-test, post-test questionnaires</i>	Quantitative and qualitative participant characteristics, expectations and evaluation.
<i>Observations during the pilot</i>	Record of observations (technical issues, about the activities, interactions with experts and other participants, behaviour, other incidents, etc.) The observations were done by 1 expert from Mizar and 1 from the UPF. All was collected in a Google Docs in a grid of incidences.
<i>Visits to the web portal and tools</i>	Google Analytics records about the number of visits to the Liferay site and the integrated tools (including self-assessment tests, LearnWeb) as iframes (records including visits of the participants and the supporting staff)

#### A.7.4 Evaluation results

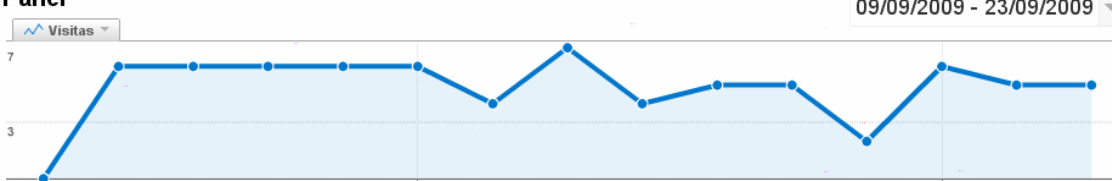
The evaluation results of the MIZAR Multimedia Business Demonstrator are presented in Table 7.3 following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.7.3 Evaluation results of the Empower Limburg Business Demonstrator**

Q	Answers
3	<p>The total number of participants was 12 (9 of them were active until the end of the demonstrator). There were two main types of participants: 3 with tutor roles (where the tutor training was the principal objective) and 9 learners (Spanish as second language learners, with different levels of knowledge of the language among them). The profile of the participants is further described after this paragraph in detail. Nevertheless, there are some points to bring out now - the participants follow the experience from their houses, and did not meet each others so that the pilot was done on a complete online environment; - one of the tutors made a personal follow-up of each of the participants, mainly through digital means (email, forum, messenger), but in some cases she went to meet personally the persons to help on using the tool. - all of the participants were north American persons interested on learning and improving their level of Spanish; the level of Spanish knowledge was very different among them, so their interests were also different.</p> <hr/> <p><b>Participants' characteristics</b> The persons who participated on the pilot where persons who live at the United States of America and they were mostly females. There were two types of participants with two different roles: the Tutor role and the Learner role. The conclusions will be different for each group of participants.</p> <p><b><u>Tutor role</u></b> The Tutor role aims to acquire competences related to the teaching of Spanish as a second language. The competence approach will reinforce and train their skills for teaching Spanish in their daily work, which is to be able to teach Spanish with some specific competence profiles to develop teaching skills like pedagogy of the teaching, and some other competences profiles that will help them to develop specific competences of their students.</p> <p><b><u>Education level</u></b> All of them have University studies. 70% have Master grade.</p> <p><b><u>Spanish language education level</u></b> 70% of them don't have a Spanish language certificate for teaching, neither an official grade certification. 30% have a K-12 tutor Spanish level. All of them coursed Spanish at university. They assess themselves with a very good/ good</p>

	<p>Spanish level. Previous experiences in online learning and competence learning approach. 70% never have followed a competence based learning, 30% have followed a competence based learning but not online. None of them know any Spanish course online.</p> <p><b><i>Motivations to do the pilot</i></b> 30% want to keep up to date, 70% want to improve their Spanish level, offer more resources to their pupils and improve their professional level. So, the professional performance improvement would be the main motivation. They also give personal motivations like offer more ICT integrated contents, learn new ways to teach Spanish, understand online platforms for language teaching and discover more online resources.</p> <p><b><i>ICT's profile</i></b> All of them consider that they have high Internet user level, using the computer more than 10 hours a week for searching information and for connecting themselves with colleagues and friends using chat, e-mail, skype, etc.</p> <p><b><i>ICT's access and uses</i></b> All of them have computer and high speed Internet connection at home. 70% have Internet connection in the classroom. 30% can access occasionally a computer equipped classroom. All of them use videos and audios in the classroom and 30% also uses Internet contents and interactive exercises.</p> <p><b><i>Learning style preferences and content needs</i></b> All of them preferred step by step learning style with tutor. All of them preferred a lot of variety and quantity of activities. They also appreciate the most in an online training course the easiness to use, the clarity presenting learning aims and high interactivity level.</p> <p><b><i>Learner role</i></b> The Learner role aims to give skills related to Spanish as a second language learning.</p> <p><b><i>Education level</i></b> 20% are still in high school and 80% have finished secondary school.</p> <p><b><i>Spanish language education level</i></b> 20% studied Spanish at primary school, 40% at university and 40% at high school. None of them have an official Spanish language certificate. 20% assess themselves with a very good Spanish level, 40% assess themselves with a good Spanish level and 40% assess themselves with a basic Spanish level.</p> <p><b><i>Previous experiences in online learning and competence learning approach</i></b> None of them have followed any online course before. 40% of them have followed a competence based studies before and 60% of them no.</p> <p><b><i>Motivations to do the pilot</i></b> 30% want improve their Spanish language level, 30% want to integrate better in society, 30% want to improve their professional situation or change job, 10% want to use the language in concrete situations. They also give personal motivations related to Spanish language learning like, to learn more about Spanish grammar, and to improve pronunciation and writing. However, all of them think that to know Spanish will be very helpful for their future (professional development).</p> <p><b><i>ICT's profile</i></b> 50% consider that they have very good Internet user level, 40% good Internet user level and 10% basic Internet user level. 70% spend 6 to 10 hours a week on internet, 15% spend less than 5 hours a week and 15% spend more than 10 hours a week.</p> <p><b><i>ICT's access and uses</i></b> All of them have their own computer and high speed Internet connection at home. Internet uses: 70% uses Internet to search information and for belong to a Internet community such as facebook, hi5, linkedin, etc. 45% of those also uses to communicate with others using e-mail, chat, skype, etc. 10% of those also uses to share resources like music, documents, photos, etc. The other 30% uses Internet only to belong a community and to communicate with others.</p> <p><b><i>Learning style preferences and content needs</i></b> All of them preferred a step by step learning style with tutor. All of them what valued the most were a lot of variety and quantity of activities. 40% also appreciate the most in a online training course easiness to use, the clarity presenting learning aims and high interactivity level.</p>
4	<p>Basically 2 organizations were involved in the demonstrator: UPF/ (TENCompetence), as technical provider, who collaborated on the pilot design, and developed the adaptation and configuration of the infrastructure, and helped and supported in each step for the demonstrator development, answering and helping on any doubt that appeared about the tool and its use. Mizar Multimedia, content and service provider, who identified the TC tools useful for the area of Spanish language competence development, designed the portal where the TC tools were included, reached the participants, used the tool for the pilot development, and made the follow up of the clients and the evaluation from their comments. And, finally, it has evaluated the business model viability from the results of the pilot.</p>
5	<p>There are two main types of individual learners involved. Even if they were two different profiles, the individual learners mainly answered to a similar interest: to improve their <b>level of</b></p>

	<p><b>Spanish in their professional development.</b></p> <p>So, we can say that this main interest was based on a common objective for all the learners, tutors and learners: they were interested in improving their career (present or future), so that the professional motivation was the most important one. This reinforces the idea that they consider the Spanish as a tool for their professional development.</p> <p>Professional interests can be broken down on differentiated objectives:</p> <p><b>(1) People with a need to develop some general or specific competences to perform their job better, to solve any type of problems or to learn to cope with specific situations.</b></p> <p>Among the tutors, some of them felt that it was an opportunity to keep themselves up to date, and to find new ways to teach and teaching resources to use.</p> <p>The learners were also interested in improving their level and learning how to deal in some situations in order to be prepared for the future.</p> <p><b>(4) People who want to develop competences due to the intrinsic motivation to learn something in a certain area.</b> This includes people who want to develop competences to improve their quality of life (hobbies, family life, social environment, etc.), or to get support in something which is difficult for them. However, in most cases the motivation is driven by the professional field.</p>
6	<p><b>4) Groups in companies who want to (or must) develop competences in order to perform better.</b></p> <p>Basically all the participants were persons who were interested in improving their level of Spanish or its “professional” performance. There are two groups:</p> <ul style="list-style-type: none"> <li>- Learners who feel that to improve their Spanish and the tool will help them will open new professional and social opportunities</li> <li>- Tutors who want to improve their Spanish as well as to be able to guide their work, to improve their ability to teach, and to be able to use better the didactic resources, etc. In consequence, to improve their professional performance.</li> </ul>
7	<p><b>3) Organizations that produce knowledge and want to manage the exploitation, management and dissemination of knowledge.</b></p>
8	<p>There have been basically 4 people / authors from Mizar Multimedia who participated in the development of the demonstrator, with different roles and use of different tools:</p> <ul style="list-style-type: none"> <li>- Person who conducted the study of tools, and identified and selected from the TC tools available the ones to use in the demonstrator in order to answer to the requirements of content and pedagogical competence for Spanish language development. She defined the implementation with UPF for the demonstrator development. Also carried out the design of the portal and integration in the Life-ray in order to adapt the interface to the Mizar brand. Subsequently, she validated the rise of the contents in the tool. Finally, she answered (via forum or email) to the more technical questions that arose from participants during the launching of the pilot.</li> <li>- Linguistic and pedagogical director: defining the type and levels of competency profile, instructional design and types of learning activities to apply to the PDP. Pre-selection of cultural contents to present and detail of the competence profiles.</li> <li>- Project direction: definition and description of the project in terms of competences, educational architecture from the PDP, and direction from a point of view of content and skills development schemes. Participation in the design of the portal to be presented on the Life-ray.</li> <li>- The person who, under the direction of the linguistic and pedagogical director, made the restructuring of the tables of contents and breakdown of competencies, including UoL creation and adaptation of Mizar contents and resources. She used the PCM and the PDP (definition of activities).</li> </ul>
9	<p>Taking into account the people of the UPF and Mizar Multimedia:</p> <ul style="list-style-type: none"> <li>- Technical Staff: 3,</li> <li>- Educational support:2,</li> <li>- Educational and designer, and management: 2</li> </ul>
10	<p>3 assessors. However, the roles overlap with the previous point.</p>

11	3 educational profiles from Mizar. However, the roles overlap with the previous points																																
12	3 technical staff from UPF /TC and 1 from Mizar. However, the roles overlap with the previous points																																
13	<p>1 Tutorial role, primarily pedagogical.</p> <p>When we start running the pilot, we saw the need to have a person to do "mentoring" and follow the participants, a person who could see and answer to individual questions in the process of self-learning. Basically there were three reasons that explains this need:</p> <ul style="list-style-type: none"> <li>- Being a complete on-line pilot, with no personal contact, and being a competence approach, it was new for the learner participants. The learners were used to follow formal and structured guidelines and to have personal guidance for the sequencing of learning, so that they remained confused about how they should work on the first days.</li> <li>- The navigation is neither intuitive nor self-explanatory: although explanations are available in a guide, when working with Internet users are more used to intuitively know what that can or should do, and where to find what they want.</li> <li>- This pedagogical support was concentrated in the initial stages of the implementation of pilot.</li> </ul>																																
14	The learners used the infrastructure basically at home, even if some used it at the educational institutions (at the computers for the tutors).																																
15	<p>There are many differences between the time spent by the tutors and the students. 70% spend 10 to 15 hours in the pilot. 30% spend less than 5 hours. 45% have finished their development plans. Majority logged almost every day (from 7<sup>th</sup> September to 30<sup>th</sup> of September), weekdays and not weekends. Among the participants, we could establish 3 groups:</p> <p>a) Those who were connected about 15/20 minutes almost every day: we considered that they used some of the resources or activities of a particular competence, not exhaustively. They were also interested on some of the cultural contents, without making activities. Most of the students answered to this profile.</p> <p>b) Those who logged about 25/35 minutes, who looked to go further on and to complete a concrete competence profile, even if they wouldn't do all the activities and resources.</p> <p>c) Those who, connecting about 35-40 minutes, were interested not only on reviewing all the contents, resources and activities of a competence, but also on looking at the cultural contents and resources at their disposal.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>System usage:</p> <ul style="list-style-type: none"> <li>- 92 visits (73 in via 8 cities in EE.UU, 19 in via countries of Europe)</li> <li>-297 page views</li> <li>-3.23 pages/visit</li> </ul> </div> <div> <p><b>Panel</b></p> <p>09/09/2009 - 23/09/2009</p>  <table border="1"> <caption>Data for Figure A7.7: Usage of the TENCompetence system during the official period of the pilot [visits]</caption> <thead> <tr> <th>Date</th> <th>Visits</th> </tr> </thead> <tbody> <tr><td>09/09/2009</td><td>3</td></tr> <tr><td>10/09/2009</td><td>7</td></tr> <tr><td>11/09/2009</td><td>7</td></tr> <tr><td>12/09/2009</td><td>7</td></tr> <tr><td>13/09/2009</td><td>7</td></tr> <tr><td>14/09/2009</td><td>7</td></tr> <tr><td>15/09/2009</td><td>4</td></tr> <tr><td>16/09/2009</td><td>7</td></tr> <tr><td>17/09/2009</td><td>4</td></tr> <tr><td>18/09/2009</td><td>5</td></tr> <tr><td>19/09/2009</td><td>5</td></tr> <tr><td>20/09/2009</td><td>3</td></tr> <tr><td>21/09/2009</td><td>7</td></tr> <tr><td>22/09/2009</td><td>6</td></tr> <tr><td>23/09/2009</td><td>6</td></tr> </tbody> </table> </div> <p><b>Figure A7.7. Usage of the TENCompetence system during the official period of the pilot [visits]</b></p>	Date	Visits	09/09/2009	3	10/09/2009	7	11/09/2009	7	12/09/2009	7	13/09/2009	7	14/09/2009	7	15/09/2009	4	16/09/2009	7	17/09/2009	4	18/09/2009	5	19/09/2009	5	20/09/2009	3	21/09/2009	7	22/09/2009	6	23/09/2009	6
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23/09/2009	6																																
16	<p>Spanish language:</p> <p>A1- Describir,</p> <p>A1- Expresar buenos deseos y preferencias,</p> <p>A1- Relacionarse con los demás,</p> <p>A1- Verbos: presente de indicativo,</p> <p>B1- Didáctica para el profesor,</p> <p>B1- Cómo enseñar a relacionarse con los demás,</p> <p>B1- Cómo enseñar a describir,</p> <p>B1- Cómo enseñar a expresar buenos deseos y preferencias,</p> <p>B1- Cómo enseñar el uso de los verbos en presente de indicativo</p>																																



17	<p>A total of 64</p> <p>Capacidad de saludar y despedirse</p> <p>Habilidad de uso de los pronombres personales de sujeto</p> <p>Habilidad de uso de los verbos SER y ESTAR</p> <p>Destreza en el uso del género del sustantivo</p> <p>Habilidad de uso del número del sustantivo</p> <p>Capacidad de presentarse diciendo la nacionalidad</p> <p>Aptitud de contar de 1 a 100</p> <p>Capacidad de presentarse diciendo la edad</p> <p>Destreza en presentarse y presentar a alguien</p> <p>Capacidad de preguntar y decir qué es un objeto</p> <p>Destreza en describir objetos.</p> <p>Aptitudes para describir el aspecto físico de alguien</p> <p>Capacidad para describir el carácter de alguien</p> <p>Capacidad para describir una situación</p> <p>Capacidad para formular buenos deseos</p> <p>Capacidad para dar las gracias</p> <p>Destreza en expresar gustos</p> <p>Habilidad para expresar preferencias</p> <p>Habilidad de uso de los verbos regulares de la 1ª conjugación</p> <p>Capacidad de uso de los verbos regulares de la 2ª y la 3ª conjugación</p> <p>Habilidad de uso de los verbos pronominales y reflexivos</p> <p>Destreza en el uso de los verbos irregulares</p> <p>Habilidad de uso de los verbos irregulares en e → ie</p> <p>Capacidad de uso de los verbos irregulares en e → i</p> <p>Aptitudes de uso de los verbos irregulares: 1ª persona en -go</p> <p>Habilidad de uso de los verbos irregulares o → ue</p> <p>Manejo del método didáctico en una clase de español: presentación y guía del método para trabajar cada una de las destrezas.</p> <p>Capacidad de evaluar el nivel inicial del alumnos</p> <p>Capacidad de llevar a cabo una evaluación continua eficaz</p> <p>Capacidad de preparar a sus alumnos para obtener el Diploma De Español como Lengua Extranjera (DELE).</p> <p>Capacidad de motivar al alumno</p> <p>Capacidad de aproximar el léxico de una lengua extranjera</p> <p>Habilidad para enseñar a saludar y despedirse</p> <p>Capacidad de acercar la lengua al alumno</p> <p>Capacidad de introducir la gramática en clase.</p> <p>Aptitud de enseñar el uso de los pronombres personales de sujeto</p> <p>Capacidad de enseñar el uso de los verbos SER y ESTAR</p> <p>Capacidad de enseñar el uso del género del sustantivo</p> <p>Aptitudes para intercalar recursos en el aula.</p> <p>Capacidad de enseñar el uso del número del sustantivo</p> <p>Capacidad de enseñar a presentarse diciendo la nacionalidad</p> <p>Habilidades para enseñar a contar</p> <p>Capacidad de enseñar a decir la edad</p> <p>Destreza para enseñar a presentarse y presentar a alguien</p> <p>Capacidad de enseñar preguntar y decir qué es un objeto</p> <p>Aptitudes para instruir en la descripción de objetos</p> <p>Capacidad de enseñar a describir el aspecto físico de alguien</p> <p>Capacidad de enseñar a describir el carácter de alguien</p> <p>Habilidades para introducir la dramatización en una clase de lengua.</p> <p>Capacidad de enseñar a describir una situación</p> <p>Habilidad para vincular descripciones de situación y de lugar</p>
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	<p>Aptitud para trabajar contenidos transversalmente.</p> <p>Destreza en la enseñanza para formular buenos deseos</p> <p>Capacidad de enseñar a dar las gracias</p> <p>Capacidad de enseñar a expresar gustos</p> <p>Capacidad de enseñar a expresar preferencias</p> <p>Capacidad de enseñar el uso de los verbos regulares de la 1ª conjugación</p> <p>Habilidad en la docencia del uso de los verbos regulares de la 2ª y la 3ª conjugación</p> <p>Capacidad de enseñar el uso de los verbos pronominales y reflexivos</p> <p>Aptitudes para instruir en el uso de los verbos irregulares</p> <p>Capacidad de enseñar el uso de los verbos irregulares en e → ie</p> <p>Destreza en la enseñanza del uso de los verbos irregulares en e → i</p> <p>Habilidad de enseñar el uso de los verbos irregulares: 1ª persona en -go</p>																						
18	106 activities																						
19	2 (1 UPF, and 1 person from MIZAR)																						
20	N/A																						
21	12 learners + the "tutor" (and Mizar personnel)																						
22	N/A																						
23	N/A																						
24	N/A																						
25	N/A																						
26	<p>Liferay has been used a lot by all the participants (1 directly, 3 indirectly).</p> <p>It was the tool that has allowed:</p> <ul style="list-style-type: none"> <li>- To costumize the tool to the Mizar brand,</li> <li>- To integrate the cultural content (as part of cultural competence and social) and update them continuously in a simple manner by the author. The provider / author used the Liferay platform to add third party contents like videos, weather gadgets, dictionaries... etc.</li> </ul> <p>In general terms the Liferay had permitted to us to add new contents easily.</p> <p>As for the learners, they have positively valued the Liferay tool. They consider that:</p> <ul style="list-style-type: none"> <li>- the tool is easy to use and intuitive,</li> <li>- the type of content is more “open” and interactive, although they also say that sometimes there is too much content and becomes a little bit confusing.</li> </ul> <p>The forum page was only used in two occasions: once they had the tutor personal contact, the participants preferred to contact her personally.</p> <p>The chat was not used at all. During the pilot they didn’t contact at all with the other learners through the forum, and they just used the email: most of them thought that these tools were for technical questions and they directly contact with the tutor.</p> <p>Participants rated some general aspects of the tools and the learning resources, 1 worst score, 5 best score. The average results were:</p> <table border="1"> <thead> <tr> <th>Aspects</th><th>Score (average)</th></tr> </thead> <tbody> <tr> <td>The tool is easy to use.</td><td>3</td></tr> <tr> <td>The social interaction.</td><td>1</td></tr> <tr> <td>The learning resources:</td><td></td></tr> <tr> <td>    They are pleasant.</td><td>4</td></tr> <tr> <td>    They are useful.</td><td>3</td></tr> <tr> <td>    They are varied.</td><td>4</td></tr> <tr> <td>    They are interactive.</td><td>3</td></tr> <tr> <td>    There are many.</td><td>4</td></tr> <tr> <td>    The flexibility of use.</td><td>4</td></tr> <tr> <td>    The tutoring and support</td><td>3</td></tr> </tbody> </table>	Aspects	Score (average)	The tool is easy to use.	3	The social interaction.	1	The learning resources:		They are pleasant.	4	They are useful.	3	They are varied.	4	They are interactive.	3	There are many.	4	The flexibility of use.	4	The tutoring and support	3
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The tutoring and support	3																						
27	4-The participants mainly used the PDP and the Liferay.																						
28	<p>We segment this endpoint into two groups:</p> <p>The learners have learned mostly between 2 and 4 competence profiles. Some people have chosen to work in a more comprehensive way the competence profiles, while others have preferred to go forward and not be as comprehensive in each of the skills involved. They have</p>																						



	<p>done more over the competencies involving social skills.</p> <p>On the other hand, tutor-role learners have been more exhaustive, almost all have learned all the competence profiles, and attempted to acquire skills in greater depth.</p>										
29	6 participants										
30	<p>The vast majority of people (9, that means 75/80%) are undecided to continue with the approach.</p> <p>In contrast, the rest is divided equally among those who like to continue with the approach and those who will not like to continue with the approach.</p> <p>There are some general facts which we believe should be considered because they help to understand the results:</p> <ul style="list-style-type: none"> <li>- The vast majority of participants had never followed any course online, so that their environment was "bizarre".</li> <li>- Moreover, almost none of the participants knew or had taken any competence based study and in general preferred to follow more classical content approaches.</li> </ul> <p>Incidents reported by the participants and observations made by MIZAR:</p> <ul style="list-style-type: none"> <li>- Regarding training, a participant said: <i>"I would add video examples for the tutors. When skills are presented or methods for using the material, I would show it so participants see it in action. I would include a better training session so we understand and feel confident using it from the beginning."</i> MIZAR also observed that the help guides should be more interactive providing users with support in every step when using the tools.</li> <li>- There were some problems regarding the management of users in the system (Liferay and TENCompetence tools working independently). MIZAR suggests that the administration tooling of the LifeRay platform should be common with the TENCompetence tools.</li> <li>- The CAS system for the accesses is not working properly and it is only useful if there is only one tool integrated in Liferay.</li> <li>- The "evidence" functionality in the PDP tool was confusing for the participants.</li> </ul>										
31	All the participants appreciated positively the learning experience.										
32	<p>Most of them valued positively the control of their own learning, even if they were not used to it. 70% of the participants preferred the flexible learning route, versus the fixed one, and they liked to know their competence level and to be able to know what they have to learn or improve (vs. absolutely guided learning). Nevertheless, some of them they thought that it was a little bit confusing at the beginning. Qualitative comments on the flexibility provided by the tool are <i>"I like that I could complete the activities at my own pace. I have a very busy schedule and the tool allowed me to complete the program at my leisure. That was very convenient"</i>, <i>"I liked the flexibility to choose when to work and focus on what I wanted to because it was really personal to me. I felt more responsible for my learning and held accountable."</i></p> <p>They also scored the learning aspects that they value the most in this competence based training system. 1 worst score, 5 best score.</p> <table border="1"> <thead> <tr> <th>Aspects valued in this competence based training</th><th>Score (average)</th></tr> </thead> <tbody> <tr> <td>Control of my own learning.</td><td>4</td></tr> <tr> <td>To know about my competence level, what I have to learn or improve on.</td><td>4</td></tr> <tr> <td>Flexibility to choose a personal development plan.</td><td>4</td></tr> <tr> <td>To choose the time I spend on my training.</td><td>5</td></tr> </tbody> </table> <p>In general, they liked the resources. What they like the most was to have many activities and short explanations, audios, and the cultural information. Nevertheless, they missed more interactivity in the activities, and more videos. They found the resources pleasant and useful, very varied, but not interactive enough. They considered that the collaboration and social interaction was not sufficiently supported. More integration between Liferay and the PDP tool was requested, as a participant said <i>"I think the resources in the welcome page of Liferay were attractive and fun to look through. It would be nice to connect them even more to</i></p>	Aspects valued in this competence based training	Score (average)	Control of my own learning.	4	To know about my competence level, what I have to learn or improve on.	4	Flexibility to choose a personal development plan.	4	To choose the time I spend on my training.	5
Aspects valued in this competence based training	Score (average)										
Control of my own learning.	4										
To know about my competence level, what I have to learn or improve on.	4										
Flexibility to choose a personal development plan.	4										
To choose the time I spend on my training.	5										

	<i>the activities we did in the competence building section”</i>
33	<p>1) how many have progressed improving a specific competence of its current job: 3 directly</p> <p>2) how many have progressed improving a specific competence for a new job : 3</p> <p>3) how many have explored the community / learning network 0</p> <p>4) how many have progressed keeping up-to-date: 3</p> <p>5) how many have progressed assessing their competences: 3 were aware of it, but in general they learnt to assess their competences during the process</p> <p>6) how many have progressed reflecting on their competences: all of them had to learn to reflect on their competences; the learners are less used to reflect on their own competences</p> <p>7) how may have progressed receiving support for some non-trivial problem: all of them</p>
34	<p>2) self-organised learning (autonomous learner):</p> <p>3) human resource development (like self-organised learning but with pre-defined goals and pre-selected learning offers):</p> <p>5) knowledge management (mandatory knowledge exchange):</p>
35	<p>This can only be evaluated if you consider the profile of the participants. The tutors said that it will partially help to make a positive change in their functioning and, for sure, having more resources to use during their work with learners (improving their performance).</p> <p>On the other hand, almost all the learners have experienced a positive effect in their personal competence, but they don't connect it yet to the job, family effects.</p> <p>In any case, the language learning is a slow and long process that can not be evaluated immediately.</p>
36	Mizar has 8 persons working directly and a number of free-lance workers depending on the learning focus of the project or service it offers.
37	Enterprises • Industry - publishing & interactive contents
38	Mizar: education and communication, 4
39	<p>There were many objectives:</p> <p>Being aware of the importance of the lifelong learning nowadays, Mizar wanted to develop the platform for the lifelong learning of the Spanish that gathers the opportunities that the new technologies offer, with an approach for competences, adapting them to the different persons and situations, and from a more multicultural point of view.</p> <p>The use of the services and tools of TENCompetence was an opportunity that would allow the distribution and management of resources for specific purposes and singular contexts of lifelong learning and overcoming the barriers of space and distribution, as well as reinforcing the competitive current strategy.</p> <p>In this sense, another objective was to experience and develop a learning platform focused on a competence approach, because it was an opportunity to reach the “individuals” (learners) directly,</p> <p>Other objectives that we had were:</p> <ul style="list-style-type: none"> <li>- To know the educational needs of future clients. To know the type of learning they would choose in order to develop new skills.</li> <li>- The pilot was an opportunity for Mizar for offering Spanish training services to tutors and to learners, what means to develop its own service for further dissemination of its own language courses with the TENCompetence new tools.</li> <li>- The pilot was the way to have more information about the motivations of the learners in the Spanish language learning and to evaluate how much they would accept to pay, so the costs and revenues could be evaluated.</li> <li>- To test the TENCompetence tools as a platform to develop a business model for the future.</li> </ul>
40	<p>2) improving a specific competence for a new job</p> <p>4) keeping up-to-date</p> <p>5) assessing their competences</p>
41	In general, the working processes and job positions in the organisations didn't change. Mainly, what has changed is the linguistic and pedagogical model and learning sequence.
42	Content provider

43	<p>From the standpoint of Mizar, we are undecided to continue with the TENCompetence approach. We would like to explain ourselves. We believe that the approach is very interesting and has much potential, but we find some weaknesses in order to continue with it:</p> <ul style="list-style-type: none"> <li>- The objective was to provide a service for the self-learning language and therefore the service must respond to many needs, levels and different interests. People who could participate would be from all over the world, with many different contexts and situations. Therefore, the collaborative and social component should be much more important (being able to create different groups of interests), and needs a tool very adaptable and upgradeable, and easy to handle.</li> <li>- Similarly, it might be necessary to include all types of resources that could be offered within the tool, without leaving it, including automatic self-correcting activities that would allow monitoring and self-assess the results and the improvement.</li> <li>- During the pilot, it has been seen that the public appreciates further guidance in their learning, because they feel disoriented, still learning a language (especially for novices) is sometimes conceived as guided and sequenced, and is not used to pay for online resources if the resources is not associated with some form of service (tutoring) and certification.</li> </ul> <p>All these points make the business less viable.</p>
44	<p>From the authors, the participants (4) appreciate their experience based on TC but they felt that it was a bit disappointing: all agree that it was a positive experience to have (to shift from a content-based approach to a competence-based approach), but the real experience with the tools and the real users was disappointing.</p>
45	<p>The most important change it has been to shift from a content-based approach to a competence based approach. Consequently, it also affected on having to adapt the contents to the TC tools and approach.</p> <p>We have also realized that if we want to develop a distance learning service, the strategy of covering each competence profile must change from what we usually do:</p> <ul style="list-style-type: none"> <li>- The practice (activities) remains in second place, learners do not seek completeness, and instead they do more emphasis on the design and the level of interactivity.</li> <li>- They don't want much practice, even if it is the only way to consolidate learning. They want to "treat" more competences.</li> <li>- If we want them to pay, we have to look for the essential motivation to do so. For example, we already saw that the tutors would be an interesting target because they value resources and improving their performance on their job; moreover, they can understand the instructions and hold a conversation in Spanish.</li> </ul> <p>Therefore, the setting-up of the pilot affected not only for the adaptation to the tool and the content, but also for the linguistic and pedagogical strategy to implement.</p>
46	<p>In the pilot we have realized that the participants would hardly pay for the service provided if it is not combined with a personal guidance. In the self-learning of languages through Internet the materials and tools are not the only important elements (although they valued very much the contents), they still require additional service (understood as more "personal guidance"). However, it seems that it would be a case more potentially possible related to the service to the tutors for improving their performance.</p>
47	N/A
48	<p>Two types of resources were needed:</p> <ul style="list-style-type: none"> <li>- contents</li> <li>- a person to adapt and update the contents that Mizar already had</li> <li>- commercial force for attracting learners / participants of the demonstrator (commercial and communication investment)</li> </ul>
49	<p>Mizar has identified a number of issues that condition the usage of TENCompetence in the future. Some of the concerns have been mentioned before. Other issues include: 1) the tools should be more tightly integrated, 2) include automatic tools for self-assessment, 3) more collaborative tools, 4) enhance user-friendly aspects and facilitate customization according to brand images.</p>

50	In the decision making process to install TENC tools in our own servers there are some important aspects that should be considered and that at this moment are not clear. Topics like the requirements of maintenance, the support for its development and retrofitting, upgrades, compatibility with other systems and tools, the consolidation and the future of the TENC tools, etc. all these components would be important to value.
51	Customization would be absolutely necessary, and the cost (time and money) should be evaluated.
52	<p>The aim was to develop the platform for the lifelong learning of the Spanish that gathers the opportunities that the new technologies offer adapting them to the different persons and situations. We wanted to integrate the online new service through TENCompetence that had to complement its actual services and content developments, in order to reinforce the services that Mizar gives to their clients and to the final learners.</p> <p>The experience was very interesting, but we realized that:</p> <p>About the Spanish as second language market online:</p> <ul style="list-style-type: none"> <li>- Difficulties of having revenues if there is not a great component of service: guidance and follow up tool would be necessary.</li> <li>- Little disposition to pay for it unless there is a large component of personal service (almost all the participants said that they would not pay).</li> <li>- Need to invest on a commercial and marketing action.</li> </ul> <p>About the tool:</p> <ul style="list-style-type: none"> <li>- Difficulty to adjust the tool to our particular needs without a developer (possible with Liferay portal, but not the PDP tool integrated as an iframe)</li> <li>- The different tools must be integrated in order that the learner feels that they are related.</li> <li>- Difficulty of managing learners and micropagos (micropagos)</li> </ul>

### A.7.5 Discussion

MIZAR multimedia SME is a content provider devoted to educational purposes. One of its work lines is the development of “Spanish language for business”. Its business model consists in providing materials such as books and CD ROMS to language schools in USA. The learners attending these schools are normally professionals with very different profiles such as doctors or lawyers but with a common goal: to learn Spanish language for their daily work. They also provide the necessary material and support for forming the teachers in that schools. They form language teachers for training professionals in Spanish language competences.

The TENCompetence infrastructure provided them the possibility of extending their business model by including an online service for learners and tutors for delivering online competence development programs. The idea was to create a space for supporting the reinforcement of those competences worked in class and practice different other competences according to the learners’ interests.

The results from the business demonstrator show the applicability and feasibility of the TENCompetence infrastructure for extending the Mizar business model by providing an online environment for the self-development of competences.

From the point of view of the learners, most of them considered the demonstrator a positive experience mainly because of the variability of the learning resources and most notably because of the possibility of controlling their own learning (see impact indicator information question 32). They consider the proposed platform very flexible and a good support for evaluating their competence levels. Nevertheless, they found some limitations that should be have taken into account in future implementations. On one hand, they would prefer to have more interactive activities and a tighter integration between the different tools of the system.

From the point of view of Mizar Multimedia, the experience has been useful mainly for two points: (1) to identify the main needs of the learners and their motivation in online Spanish course, and (2) to understand the main requirements for the development of an interactive learning online platform.

For future implementations, the results show that the main efforts should be focused mainly in two aspects: (1) on the shift from the content approach to the competence development approach and (2) on the improvement on the tooling available.

From the first point, it has been shown that a guidance and follow up tool would be necessary, that it is necessary to continuous working on how to add value to the online course in front of the face to face courses by increasing the flexibility of the contents and the socialization opportunities and, finally, invest more on commercial and marketing actions.


From the second point, we conclude that it would be necessary to improve the tooling available for providing a better integration of the tools in the platform, facilitating the process of adjusting the platform to the particular needs of the user without a developer and adding some management tool for make the micropayments possible. The first and the second aspects could be partially solved with the new functionalities developed in the last year of the project. Currently, there are available a set of portlets completely integrated and easily to manage that allow a non expert user to build his/her own platform according to his/her needs.

### A.7.6 Data collection instruments

The evaluation instruments employed in the pilot are the following:

- Pre-test questionnaire for the learners with Learner Role and for the learners with the Tutor Role.
- Post-test questionnaire for learner and tutor roles
- Incidences and observation grid.

*Learner's with learner role pre-test questionnaire*

Mark in red your answer. 

#### 1. What's your academic level?

- a. I've finished Secondary school.
- b. I've finished Undergraduate school.
  - i. ¿What's your degree?
- c. I've finished University studies.
  - i. ¿What's your degree?

#### 2. Why do you want to learn Spanish?

- a. To improve my professional situation or change job.
- b. Because I like the language
- c. To better integrate myself on the society
- d. To use it in concrete situations.
- e. I need a diploma or official certificate.
- f. To improve my level.

#### 3. Have you studied Spanish before?

- a. No
- b. Yes
  - i. At school.
  - ii. At university.

iii. Online (distance learning)

**4. What's your appreciation about yours Spanish level?**

- a. Very low
- b. Low
- c. Basic
- d. Good
- e. Very good

**5. Do you have any Spanish studies certificate?**

- a. No
- b. Yes
  - i. Which one:

**6. Have you follow any online studies?**

- a. No
- b. Yes
  - i. Which studies?
  - ii. How long?
  - iii. What kinds of tools do you used it?

**7. Do you know any Spanish course online?**

**8. What type of learning style do you prefer?**

- a. Step by step, with tutor.
- b. Online guided studies but managing my dedication time on it.
- c. Online, studying only the things that I need and when I decide to.

**9. What do you expect from a Spanish training plan online?**

**10. What do you value most in a online Spanish training?**  
(1= worst score; 5=best score)

**Score from 1 to 5**

- a. Easy to use.
- b. Clarity presenting learning aims.
- c. A lot of variety and quantity of activities.
- d. High interactivity level.
- e. Others:

**11. How long do you usually use the computer? (mark how many time).**

- a. Never.
- b. Less than 5 hours a week.
- c. 6 to 10 hours a week.
- d. More than 10 hours a week.
- i. What for?
- ii. Which language?

**12. What is your Internet user level?**

- a. Very low
- b. Low
- c. Basic
- d. Good
- e. Very good

**13. How many time do you use Internet?**

- a. Never.
- b. Less than 5 hours a week.
- c. 6 to 10 hours a week.
- d. More than 10 hours a week.

**14. What for do you use Internet?**

- a. To share resources like music, documents, photos...
- b. To search information
- c. To communicate with others using chat, e-mail, skype...
- d. To belong a online community, facebook, linkedin, hi5...

15. **Do you have your own computer or access to a computer?**
- a. Yes, I have my own computer.
  - b. No, I don't have computer but I use a public access one.
  - c. No, I don't and I can't have access to one.
16. **Do you have Internet connection at home or access to one?**
- a. Yes, I have Internet connection at home and it's quite fast.
  - b. Yes, I have Internet connection at home but it's very slow.
  - c. No, but I use a public connexion (library, school, café...).
17. **Do you follow any competence based studies?**
- a. Yes
  - b. No
18. **How many time do you want to study Spanish a week?**
- a. Time: \_\_\_\_\_hours/week
19. **Would you be willing to pay for a training online Spanish plan?**
- a. No
  - b. Yes
    - i. How much:
    - ii. What aspects would you require in minimum terms:

Thank you very much for your collaboration.



*Learner's with learner role post-test questionnaire*

You've finished the pilot test! First of all, thank you very much for your participation, despite the difficulties that have arisen

Upon finishing up your participation in the research, we ask that you answer a few simple questions to evaluate the tool. We're very interested in your feedback and your opinion is appreciated. Upon finishing this last step, which only takes a few minutes, you will have finished working on your personal development plan.

**Questionnaire**

Mark in red your answer.



1. **Where did you follow the personal development plan?**
  - a. At home.
  - b. At my job or school.
  - c. In a public place like library, school, café, etc.
2. **Have you finished your personal development plan?**
  - a. Yes
  - b. No
    - i. Explain why you didn't finish:
3. **How many hours have you spent on it (total)?**  
# of hours:
4. **Did you learn what you expected?**
  - a. Yes
  - b. No
5. **Mark the aspects that you consider you have progressed. Rate from 1 to 5 each aspect. (1= low progress and 5=a lot of progress)**
  - a. I have improved a particular competence related to my current job or school level.
  - b. I have improved on an exam or competition related to a new job.
  - c. I became more up to date.
  - d. Now I know my competence level in Spanish.
  - e. I have improved my competence level in Spanish.
6. **If you previously had taken a Spanish course, what do you value most of an online training course?**
  - a. Flexibility to plan my training.
  - b. The content
  - c. I don't have to go anywhere to complete the training.
7. **Mark the learning aspects you value most of this competence training system. Score from 1 to 5 (1= worst score; 5=best score)**
  - a. Control of my own learning.
  - b. To know about my competence level, what I have to learn or improve on.
  - c. Flexibility to choose a personal development plan.
  - d. To choose the time I spend on my training.
8. **In general terms, what's your opinion about the tool? Please add your personal opinion below.**
  - a. Very bad.
  - b. Bad
  - c. Regular
  - d. Good
  - e. Very good

Personal opinion:
9. **Assess the tool *Practica!* (PDP). Rate from 1 to 5 (1= worst score; 5=best score) each comment.**
  - a. Intuitive, easy to use.
  - b. I found what I'm looking for.
  - c. It's fast.
  - d. The menu options are clear.
  - e. It's practical.
10. **Were the extra resources *Mundo Hispano* & *Guías de viaje* interesting for you? Please add a personal opinion below.**
  - a. Yes
  - b. No

Personal opinion:

- 11. Assess the content. Rate from 1 to 5 (1= worst score; 5=best score) each area.**
  - a. Explanations
  - b. Activities
  - c. Cultural content
  - d. Tests & exams
  - e. Videos
  - f. Listening sections
- 12. Did you use the forum page or the help page?**
  - a. No
  - b. Yes
    - i. How many times?
    - ii. Did you get the help that you needed?(explain)
    - iii. Did you have to follow the guides to use the tool? (explain)
- 13. Mark the reasons that would be important to you if you choose to complete a competence development plan. Rate from 1 to 5 (1= worst score; 5=best score) for each reason.**
  - a. Improve my social skills.
  - b. Acquire practical skills.
  - c. Know what can I improve or learn in the future.
  - d. Acquire theoretical knowledge.
- 14. Assess the learning experience through this platform. Rate from 1 to 5 (1= worst score; 5=best score)**
- 15. What did you like best? Why?**
- 16. What did you least? Why?**
- 17. What would you improve?**
- 18. Did you find this model focusing on learning skills/competences useful?**
  - a. Yes
  - b. I don't know
  - c. No
- 19. In the future, would you take an online Spanish course?**
  - a. Yes
  - b. No
- 20. What kinds of resources or activities would you like to have found on for online course?**
  - a. I didn't miss anything.
  - b. I believe that training is missing something.
- 21. Which aspects do you value most of this training plan? Rate from 1 to 5 (1= worst score; 5=best score) for each aspect.**
  - a. The tool is easy to use.
  - b. The social interaction.
  - c. The contents:
    - i. They are pleasant.
    - ii. They are useful.
    - iii. They are varied.
    - iv. They are interactive.
    - v. There are many.
  - d. The flexibility of use.
  - e. The tutoring and support.

**Thank you very much for your collaboration, for answering the questionnaire and participating in this pilot project, TENCompetence, with which Mizar collaborates.**  
**Thank you again. Your participation and input will be very important for the future of online education.**

**Sincerely,**

**Mizar**

*Learner's with tutor role post-test questionnaire*

You've finished the pilot test! First of all, thank you very much for your participation, despite the difficulties that have arisen

Upon finishing up your participation in the research, we ask that you answer a few simple questions to evaluate the tool. We're very interested in your feedback and your opinion is appreciated. Upon finishing this last step, which only takes a few minutes, you will have finished working on your personal development plan.

**Questionnaire**


Mark in red your answer.

**22. Where did you follow the personal development plan?**

- a. At home.
- b. At my job.
- c. In a public place like library, school, café, etc.

**23. Have you finished your personal development plan?**

- a. Yes
- b. No
  - i. Explain why you didn't finish:

**24. How many hours have you spent on it (total)?**

# of hours:

**25. Did you learn what you expected?**

- a. Yes
- b. No

**26. Mark the aspects that you consider you have progressed. Rate from 1 to 5 (being 1= low progress and 5=very much progress)**

- f. I have improved a particular competence related to my current job
- g. I have improved in a competition related to a new job.
- h. I am more up to date.
- i. Now I know my competence level in Spanish.
- j. I have improved my competence level in Spanish.

**27. If you previously had taken a Spanish course, what do you value most of an online training course?**

- a. Flexibility to plan my training.
- b. The content
- c. I don't have to go anywhere to complete the training.

**28. Mark the learning aspects you value most of this competence training system. Score from 1 to 5 (1= worst score; 5=best score)**

- e. Control of my own learning.
- f. To know about my competence level, what I have to learn or improve on.
- g. Flexibility to choose a personal development plan.
- h. To choose the time I spend on my training.

**29. In general terms, what's your opinion about the tool? Please add your personal opinion below.**

- a. Very bad.
- b. Bad
- c. Regular
- d. Good
- e. Very good

Personal opinion:

**30. Assess the tool *Practica!* (PDP). Rate from 1 to 5 (1= worst score; 5=best score) each comment.**

- a. Intuitive, easy to use.
- b. I found what I'm looking for.
- c. It's fast.
- d. The menu options are clear.
- e. It's practical.

**31. Were the extra resources *Mundo Hispano* & *Guías de viaje* interesting for you? Please add a personal opinion below.**

- a. Yes
- b. No

Personal opinion:

- 32. Assess the contents. Rate from 1 to 5 (1= worst score; 5=best score)**
- Explanations
  - Activities
  - Cultural content
  - Tests & exams
  - Videos
  - Listening sections
- 33. Did you use the forum page or the help page?**
- No
  - Yes
    - How many times?
    - Did you get the help that you needed?(explain)
    - Did you have to follow the guides to use the tool? (explain)
- 34. Mark the reasons that would be important to you if you choose to complete a competence development plan. Rate from 1 to 5 (1= worst score; 5=best score) for each reason.**
- Improve my social skills.
  - Acquire practical skills.
  - Know what can I improve or learn in the future.
  - Acquire theoretical knowledge.
- 35. Assess the learning experience through this platform. Rate from 1 to 5 (1= worst score; 5=best score)**
- 36. What did you like best? Why?**
- 37. What did you least? Why?**
- 38. What would you improve?**
- 39. Did you find this model focusing on learning skills/competences useful?**
- Yes
  - I don't know
  - No
- 40. In the future, would you take an online Spanish course?**
- Yes
  - No
- 41. What kinds of resources or activities would you like to have found on for online course?**
- I didn't miss anything.
  - I believe that training is missing something.
- 42. Which aspects do you value most of this training plan? Rate from 1 to 5 (1= worst score; 5=best score) for each aspect.**
- The tool is easy to use.
  - The social interaction.
  - The contents:
    - They are pleasant.
    - They are useful.
    - They are varied.
    - They are interactive.
    - There are many.
  - The flexibility of use.
  - The tutoring and support.
- 43. Would you use the contents of this platform in your classes?**
- Yes, I found them very useful.
  - Maybe on some occasion.
  - No, I don't think it would work well in my classes.

**Thank you very much for your collaboration, for answering the questionnaire and participating in this pilot project, TENCompetence, with which Mizar collaborates.**  
**Thank you again. Your participation and input will be very important for the future of online education.**

**Sincerely,**

**Mizar**

## Appendix 8: DobleVia Business Demonstrator

### A.8.1 Description of the business demonstrator

**Table A.8.1 Description of the DobleVia Business Demonstrator**

<b>DobleVia Business Demonstrator</b>	
<p>Short description:</p> <p>DobleVia, a non-profit company of educational, social and cultural services, will be using the TENCompetence tooling within its organization. The goal of this business demonstrator is offering training opportunities for competence development to their employees, which typically have changing job requirements. The demonstrator will involve three competence profiles (Educator, Monitor and Informer).</p>	
Name and description of the Associate Partner	<p><b>Doble Via</b></p> <p>DobleVia is non-profit organization that supplies educational, social and cultural services (<a href="http://www.doblevia.coop">http://www.doblevia.coop</a>). Has 170 personnel working in management, project coordination, social dynamizing activities, education, monitoring, informing and administrative personnel.</p>
User groups	<p>DobleVia is an organization:</p> <ul style="list-style-type: none"> <li>that wants to distribute and manage new and expert knowledge within the organization/workplace. This knowledge is linked with the responsibilities and functions expected in the employees according to the different competence profiles required by the organization.</li> <li>that has to train personnel to learn specific (new, complex and changing) job requirements (e.g., training a monitor that wants also to be an educator, or simply training a new monitor so that his or her proficiency level increases).</li> <li>that produces knowledge, and wants to manage the exploitation, management and dissemination of knowledge (e.g., one team design activities or seminaries with the objective of developing their competences, DobleVia wants to collect these activities and share it with another teams).</li> </ul>
Setting	<p>Users will perform their competence development plans from their own workplace: either their own desk (if they have a computer with Internet connection) or a common computer room provided by the organization. It would be possible for users to work from homes, but it is not expected to be the rule.</p>
Roles	<p>DobleVia acts as a user organization which will work around competence development plans associated to three different profiles: Educator, Monitor and Informer.</p> <p>The main roles involved in the demonstrator will be: System manager (probably in charge of the GUI container integrating TENCompetence tools, acting as help-desk assistant, etc.), human resource manager (acting as competence, competence assessment, competence-development plans provider, etc.), learning technology expert (providing support with the learning resources), experts and a potential audience of 140 employees (the invitation of participation in the pilot will be done in an incremental basis, starting with a group of 10 employees).</p>
Tooling	<p>The main tool that will be applied in this demonstrator is the PDP tool (web</p>

	client) integrated in DobleVia's ELGG-based portal.
Aim and expectation of the demonstrator	The main aim of the demonstrator is to support DobleVia's employees in their competence development regarding the profiles required by the organization. The demonstrator pilot also aims at offering opportunities for internal promotion, making possible, for example, to monitor the development of the required competences.
Context	<p>DobleVia offers social and educational services in which its employees should master a broad set of competences that enables them to resolve daily issues, to do relationships with the clients, participants, make memorandums and statistics, etc.</p> <p>In this context, DobleVia will define three competence profiles (Educator, Monitor and Informer) with the associated competences and competence development plans.</p>
Business model / case shown in the demonstrator	<p>The benefits of this demonstrator pilot are mainly internal to the DobleVia organization (see also "user groups" section):</p> <ul style="list-style-type: none"> <li>• Provision of a tool that facilitates the work of the human resource manager</li> <li>• Personnel mastering several competence profiles</li> <li>• Lifelong learning opportunities for its employees (kept up to day)</li> <li>• Knowledge sharing among employees</li> </ul> <p>Of course, these benefits are also expected to enhance the quality of the services offered by DobleVia.</p>
Business / valorization opportunities	None
Relevance of TENCompetence for the demonstrator context	The application of the TENCompetence solutions in DobleVia will represent an importance change in the organization, which does not have till the moment any competence development policy for its employees (see also "Business model" section)
Competence profiles and competences involved	<p>The competences that define the minimum requirements for the three competence profiles of this demonstrator pilot are:</p> <p><b>Competence profile "Informer":</b></p> <ul style="list-style-type: none"> <li>• Being able to manage the flow of information between customer and service (to inform the potential audience, being able to identify incidences and suggestions)</li> <li>• Being able to manage the offered services (participants database, statistics, documentation)</li> <li>• Capacity for dealing with (new) clients and participants</li> <li>• Coordinating with the rest of the team</li> </ul> <p><b>Competence profile "Monitor":</b></p> <ul style="list-style-type: none"> <li>• Being able to perform different types of socio-educative activities (propose, plan, execute and evaluate)</li> <li>• Being able to document different types of activities and their results</li> <li>• Group work <ul style="list-style-type: none"> <li>○ Being able to act in unexpected situations</li> </ul> </li> </ul> <p><b>Competence profile "Educator":</b></p> <ul style="list-style-type: none"> <li>• Project management (design, planning, development and evaluation)</li> <li>• Managing objectives (formulation and evaluation)</li> </ul>

	<ul style="list-style-type: none"> <li>• Methodology (design and implementation)</li> <li>• Being able to perform different types of socio-educative activities (propose, plan, execute and evaluate)</li> <li>• Being able to create content</li> <li>• Elaboration of reports</li> <li>• Application of quality standards <ul style="list-style-type: none"> <li>◦ Incidences and suggestions management</li> </ul> </li> <li>• Proposing strategies of community development</li> </ul>
Training needs	<p>Training materials on the TENCompetence tooling (and probably also a specific event in DobleVia) will be needed. -Bas can this be elaborated? Think of specific products, and check availability, if not available request for help from WP9.</p>
Implementation plan	<p>The rough plan is the following:</p> <ul style="list-style-type: none"> <li>• Determine the competences associated with the three competence profiles (Educator, Monitor and Informer). The result of the initial efforts is shown in the “Competence profiles and competences involved” section.</li> <li>• Elaborate the competence development plans and embedded activities and resources.</li> <li>• Populate the system with the competence development plans</li> <li>• Execute the demonstrator pilot</li> <li>• Evaluate the demonstrator pilot</li> </ul> <p>The competence development plans and resources for the demonstrator will be developed in February and March 2009. The demonstrator will have two phases. The first phase will start at the end of April 2009 and will involve 6 participants (DobleVia employees) with experience in the area of the competence profiles. The second phase will focus on another 6 participants who have lower proficiency levels in the competences involved in the demonstrator. This second phase will be carried out in June or July.</p>
Evaluation plan	See section A.8.3
Could you mention one or more results with which you would consider your demonstrator a success?	<ul style="list-style-type: none"> <li>• Implement and extend the use of part of the working hours for competence development</li> <li>• Integrate the use in the company of "competency profiles" in the job analysis and personnel selection</li> <li>• Encourage employees to self-assess their competences</li> <li>• Evaluate "how" the lifelong learning can be offered by the company to its workers</li> <li>• Find a technology that allows DobleVia and the employees an analysis of what can be achieved in terms of competence development:</li> <li>• Requirements of the technology: <ul style="list-style-type: none"> <li>- structure the development of competences</li> <li>- include activities to acquire skills</li> <li>- is integrated into the corporate Intranet</li> <li>- link the competence development outcomes to workers' CVs</li> </ul> </li> </ul>



## A.8.2 Implementation

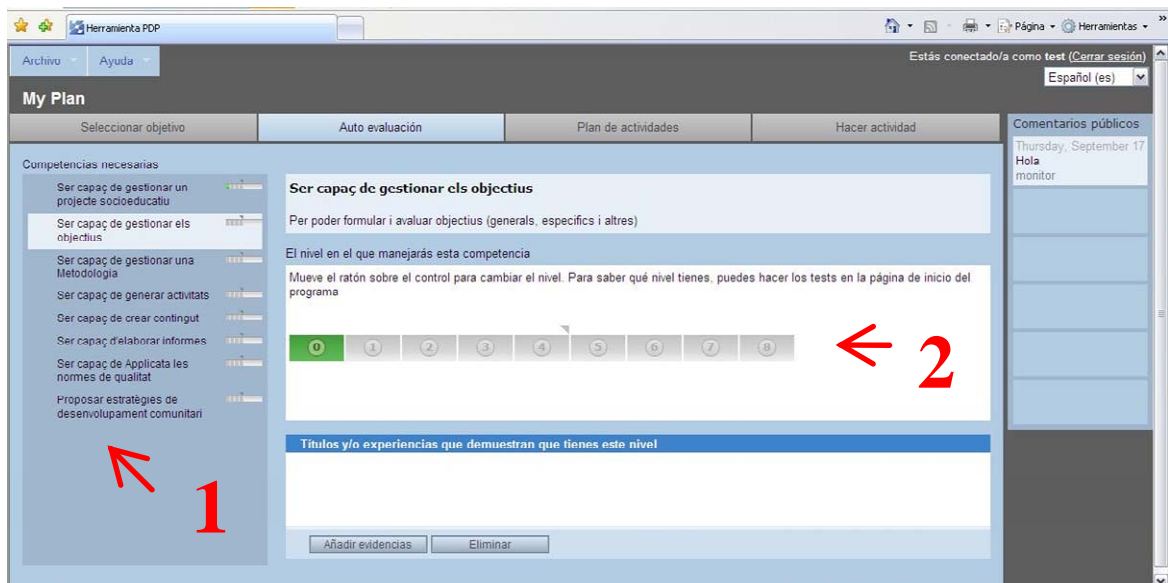
The PDP tool was integrated in the Doblevia's human resource infrastructure to support the competence development and practice. Doblevia has an Elgg 0.7 web portal (see Figure A.8.1) which they use as a social intranet for sharing information such as: calendars, portfolios, blogs, communities, forums, etc. It also includes its own Curriculum Vitae (CV) manager to facilitate the task of the persons in charge of human resources. For using the PDP tool, an employee has to log-in in the Doblevia's intranet and press over the button "Formació" (Training), (see the button in the number 1 in Figure A.8.1). After pressing the button the user views a screen with two icons: the PDP tool (see number 2 in Figure A.8.1) and a user guide of the tool (see number 3 in Figure A.8.1).



**Figure A.8.1 Doblevia's web portal with the PDP tool**

When the users select the PDP, they have to enter their username and password. After it, the PDP shows the different competence profiles contained in the tool. The participant has to select the competence profile which s/he wants to practice.

Each competence profile has a set of competences. The user has to create their personal competence plan, this is the set of competences that the participant wants to practice. For each competence of the plan (see Figure A.8.2, number 1) the participant has to select their proficiency level using the self-assessment bar (see Figure A.8.2, number 2) of the PDP tool. This bar shows 8 levels of proficiency according the European Qualification Framework, the author of the competence has edited previously the necessary required level to achieve this competence (for instance in the picture the required level is 4).



**Figure A.8.2 Self-assessment bar in the PDP tool**

After using the self-assessment bar for each competence the users select the activities that they want to practice. As a final step the user can practice the activities.

### **A.8.3 Evaluation methodology**

In order to understand if the PDP tool fits the Doblevia's expectations, 2 sessions were performed to collect data from a representative group of employees. Taking into account the competences profiles created for the business demonstrator, two members of the human resource staff selected those participants from Doblevia personnel who have more experience in these profiles.

In the first session 3 participants evaluated the tool. The group was composed of 1 director, 2 social coordinators/monitors. 2 other employees participated in the second session, 1 informer and 1 social coordinator.

Every session was divided in two parts:

a) In the first part the participants had to answer a pre-test. The objective of this test was to understand:

- (1) the expectations that the participants had about a tool to develop their competences;
- (2) the type of competence profiles which they develop in their work;
- (3) the employees' interests in achieving new competences.

b) In the second part the participants interacted with the PDP tool. Each user had an account in the Doblevia's intranet and an account in the PDP tool. The participants had to create their own personal competence plan previously selecting a competence profile. They could create their plans, selecting the competences offered, and they were motivated to practice different types of activities: an activity with a user-guide, a QTI test, a simple activity, etc.

In each session the human resource manager of Doblevia applied an observational method to collect comments, problems and ideas of the participants interacting with Doblevia's web portal and the activities contained in the PDP. Quantitative and qualitative data were collected during the two sessions. Quantitative data were collected with closed-questions in a pre-test (answered before interacting with the PDP) and post-test (answered after interacting with the PDP). Qualitative data were collected using open questions in the pre-test and post-test. After

interacting with the PDP, an interview with each participant was done. Finally, the experience finished with a discussion with all the participants. The results obtained from the tests, interviews and discussions groups were analyzed to detect tendencies in occurrences of facts, possible problematic points, etc. The qualitative data collected are more significant in this experience than the quantitative data due to the reduced number of participants. DobleVia has not been able to involve more people before October 2009 due to internal limitations (time availability of employees at the time of running the demonstrator). The duration of the sessions was of an average of 2 hours.

#### A.8.4 Evaluation results

**Table A.8.2 Evaluation results of the DobleVia Business Demonstrator**

Q	Answers
3	A total of 5 learners (3 women, 2 men) have participated until now, more learners will be involved the coming months.
4	DobleVia cooperative created the learning materials and activities, competence profiles. The participants are DobleVia employees. UPF has supported DobleVia in the initial phases of familiarization with the TENCompetence tools, and the creation of QTI tests and the evaluation of the demonstrator. In the future, the idea is to ask APOSTA cooperative (focused on training activities for other cooperatives) to design more activities and materials.
5	<p>1) People with a need to develop some general or specific competences to perform their job better, to solve any type of problems or to learn to cope with specific situations. Also those with a need to improve their career, or a desire to change their jobs: <b>45.33%</b></p> <p>2) People who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge: <b>26.66%</b></p> <p>3) People who need a formal degree, diploma or certificate at any time in their life: <b>21.33%</b></p> <p>4) People who want to develop competences due to the intrinsic motivation to learn something in a certain area. This includes people who want to develop competences to improve their quality of life (hobbies, family life, social environment, etc.), or to get support in something which is difficult for them: <b>06.66%</b></p> <p>5) Others <b>0%</b></p>
6	Participants were distributed in teams according to their usual working groups (not necessarily same profile).
7	<p>1) Organizations that want to disseminate and manage new and expert knowledge within the organization / workplace.</p> <p>2) Organizations that have to train personnel to learn or fulfill specific (new, complex or changing) job requirements.</p>
8	3, Miguel Ángel Carralero (Doble Via), Patricia Santos, Mar Pérez (UPF)
9	2, Jordi Segarra (Quality coordinator in Doble Via), Migue Ángel Carralero (Human Resource responsible in Doble Via)
10	1, Miguel A. Carralero, he reports to the DobleVia administration board composed of 5 people
11	1, Jordi Segarra
12	1, Miguel A. Carralero, with support of UPF (Lau Llobet) and server support (SU)
13	The “administration board” is assessing the impact of the demonstrator in order to take decisions related to eventually devote more resources to this initiative.
14	Always in computer rooms of DobleVia (workplace), typically on Friday (two-three hours). DobleVia’s policy is that their employees devote at least 3% of their working

	time (minimum 1,5 hours) to competence development activities.
15	The average time using TENCompetence tools (in the period of time evaluated) was of 4 hours. After the period evaluated, three participants (women) have accessed the TENCompetence tools again, one of them wanted deliberately to complete QTI self-assessment tests.
16	3 Competence profiles: Informer, Monitor, Social coordinator
17	<p>17 competences:</p> <ul style="list-style-type: none"> <li>• Being able to manage the flow of information between customer and service (to inform the potential audience, being able to identify incidences and suggestions)</li> <li>• Being able to manage the offered services (participants database, statistics, documentation)</li> <li>• Capacity for dealing with (new) clients and participants</li> <li>• Coordinating with the rest of the team</li> <li>• Being able to perform different types of socio-educative activities (propose, plan, execute and evaluate)</li> <li>• Being able to document different types of activities and their results</li> <li>• Group work</li> <li>• Being able to act in unexpected situations</li> <li>• Project management (design, planning, development and evaluation)</li> <li>• Managing objectives (formulation and evaluation)</li> <li>• Methodology (design and implementation)</li> <li>• Being able to create content</li> <li>• Elaboration of reports</li> <li>• Application of quality standards</li> <li>• Incidences and suggestions management</li> <li>• Proposing strategies of community development</li> </ul>
18	32
19	Miguel A. Carralero (DobleVia), Mar Pérez (UPF)
20	Miguel A. Carralero (DobleVia), Mar Pérez, Patricia Santos (UPF)
21	5
22	N/A
23	N/A
24	5
25	N/A
26	N/A
27	CV managing in the DobleVia intranet
28	The participants have been working in one competence profile. It is important to mention that they 4 out of the 5 participants selected a competence profile related to a better company position (instead of similar profiles). The other participant decided to reinforce the competences of their current profile to keep up to date.
29	All, 5. The activities planned for each competence profile were designed so that they were feasible to be completed with the time available in the working place.
30	After the experience with TENCompetence, all participants are keener now to keep developing competences. For example, they now take more serious the Friday time reserved for competence development activities. The leader of each working group is coordinating these activities without an explicit request from the organization.
31	<p>1) how many appreciate positively the learning experience based on TENC 4</p> <p>2) how many are neutral regarding the learning experience based on TENC 0</p> <p>3) how many rate the learning experience based on TENC as negative 1 (This participant thinks that before using software tools, the organizational strategy /change regarding competence development should be clearer and better organized)</p>

32	In the interviews the participants commented the flexibility of the approach basically because it is web-based, and asynchronous personalized solution to support their lifelong learning (see next section for a further discussion)
33	<p>1) Regarding the question “<i>have you progressed improving a specific competence of its current job? S/N</i>” The 100% of users has answered YES.</p> <p>1 bis) Regarding the select question “<i>appreciable hardly so, significantly, very remarkable</i>“, the 0% of learners thinks appreciable hardly so 80%: significantly; and 20% very remarkable</p> <p>2) With regard to the question “<i>have you progressed improving a specific competence for a new job?</i>” only 1 of 5 has answered yes.</p> <p>2 bis) This person have answered that has progressed improving for a new job in a significantly mode.</p> <p>3) Regarding the question “<i>have you progressed keeping up-to-date?</i>” 1 of 5 has answered yes, in a significantly mode.</p> <p>4) Regarding the question “<i>have you progressed receiving support for some non-trivial problem?</i>” 4 of 5 have answered YES, mainly in reference to activities related to a internal complex or burocratic processes.</p>
34	Type of competence development provided has been human resource development (like self-organised learning but with pre-defined goals and pre-selected learning offers).
35	One employer has progressed improving in higher profile. Her current job profile was Monitor and she used the PDP to acquire competences of the Animator profile. Recently she was upgraded to a Director job (it’s like a coordinator of animators).
36	The organization has 140 employers. 6 persons are studying the viability to extend the project to all employers, 2 persons are coordinating the pilot, 5 workers are participating as learners (5 administration board, personal boss, quality responsible, RRHH responsible and 5 employees/learners).
37	Services sector
38	<p>The cooperative manages public and private services related with “open centers”, social free cyber-coffees called “Telecentres”, recreation centers for children, youth and older people, scholar canteens (cooking and monitoring services), and participation studies for municipalities.</p> <p>The branches involved actually in the pilot are Open Centers, Telecentres, and recreation centers for children.</p>
39	Find tools that provide personalized competence development plans to all their workers with a low cost. DobleVia needs flexible solutions to support the competence development of new hired employees, in such a way that the training is centralized and integrated in the intranet. Collaboration tools for learning in working groups are also relevant for DobleVia.
40	<p>The use cases covered in the pilot are:</p> <ul style="list-style-type: none"> <li>- improving a specific competence of its current job</li> <li>- improving a specific competence for a new job</li> <li>- explored the community / leaning network</li> <li>- receiving support for some non-trivial problem</li> <li>- keeping up-to-date</li> </ul>

41	Somehow answered in other questions. Sometimes when DobleVia identified the need of improving a competence, then organized the training. In punctual occasions DobleVia had also to providing training activities for developing new competences (e.g., they had to cover “new” Summer socio-educative services...)
42	Designer of learning resources and activities (content provider)
43	All the roles involved in the pilot agree on saying that they would like to continue using the TENCompetence approach, and extend it to all the profiles or business lines considered in the organization.
44	In general terms all persons are satisfied with the pilot using TENCompetence tools. However, they discussed the simple approach used in the created activities.
45	After the pilot, there can be observed two important changes in the organization: in the one hand, the intranet has a “formation module”, this completes the idea seriously for the “employee portal”, seeing that the lifelong formation is another “task” in their job. In the other hand, DobleVia has recovered the tradition of the use the 3% of the working time to be devoted to learning.
46	The business model is internal training and knowledge management (see Table A.8.1)
47	Other possible business cases related to the TENCompetence ideas is to reinforce the Human Resource already existing DobleVia tooling by tightly integrating the PDP with their CV module in the Intranet.  DobleVia is also exploring to extend the piloting activities in the inter-cooperation with other cooperatives. For example, DobleVia is collaborating with 6tell (socio-educative services for kindergartens) who uses competence profiles and competences to structure their services but without software support.
48	The human resources involved has been (till the moment): 35 hours of the Responsible of Human Resources 10 hours of the Quality Responsible 2 hours of the 5 administration board members 4 hours of the 5 employers.  The material resources was been the use about 5 hours of two computing rooms of the organization.
49	DobleVia roadmap is: <ul style="list-style-type: none"> <li>• To continue working in natural small groups to obtain a representation of all branches of the business.</li> <li>• To propose work sessions to the team leader to focus and direct the issues for the working hours devoted to learning (with or without explicit related competences).</li> <li>• To order the creation of activities to external professionals if the potential users inside the organization take actual advantage of those activities.</li> </ul>
50	Due to the differential aspect that can offer DobleVia to have a tool to make customized plans for their workers, the goal is to maintain a dedicated internal server or subcontractor, but maintaining the property.
51	The tool is integrated in the intranet of the Cooperative. It would be very nice to have a personalized PDP with internal style standards (logos, colors... Style sheet)
52	<i>Implement ant extend the use of part of the working hours for training:</i> Success. The groups participating in the demonstrator, have acquired the habit of use the



	<p>3% of their working time.</p> <p><i>Integrate the use in the company of "competence profiles" in the job analysis and personnel selection:</i> Success. The demonstrator included the definition of 3 competence profiles and DobleVia is now using a strategy based in this method to evaluate new employees.</p> <p><i>Encourage employees to self-assess their competences</i> Success. The competence profiles have been communicated to employees so that they have more tools to assess their strengths and weaknesses regarding their current working tasks. The demonstrator has provided the DobleVia employees an opportunity to be aware about the need of lifelong learning.</p> <p><i>Evaluate "how" lifelong learning can be offered by the company to the workers:</i> Success. The organization has acquired (with a participatory method) a structured idea of the potentially effective methodologies for lifelong learning in the context of Doble Via.</p> <p><i>Find a technology that allows DobleVia and the employees an analysis of what can be achieved in terms of competence development:</i> Partially success. TENCompetence tools seem to offer a solution to support personal competence development plan for DobleVia employees. More time is needed to confirm this statement.</p> <p><i>Requirements:</i> TENCompetence is a good technology to structure the development of competences and to support the delivery of activities and tests. The PDP has been integrated into the corporate Intranet, with the unique problem of double-login. Linking the employees' outcomes of competence development to their CVs has not been implemented yet.</p>
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### A.8.5 Discussion

Additional conclusions to those reported in previous section are exposed here.

The main findings extracted from the pre-test were:

A tool for competence development has to offer functionalities for: (a) Practicing competences to improve their knowledge, abilities or skills. They can use these competences to learn how to solve problems or specific situations in their job. (b) Sharing of knowledge between people of the same profile. (c) Offering ways to achieve evidences (certificates, grades and others).

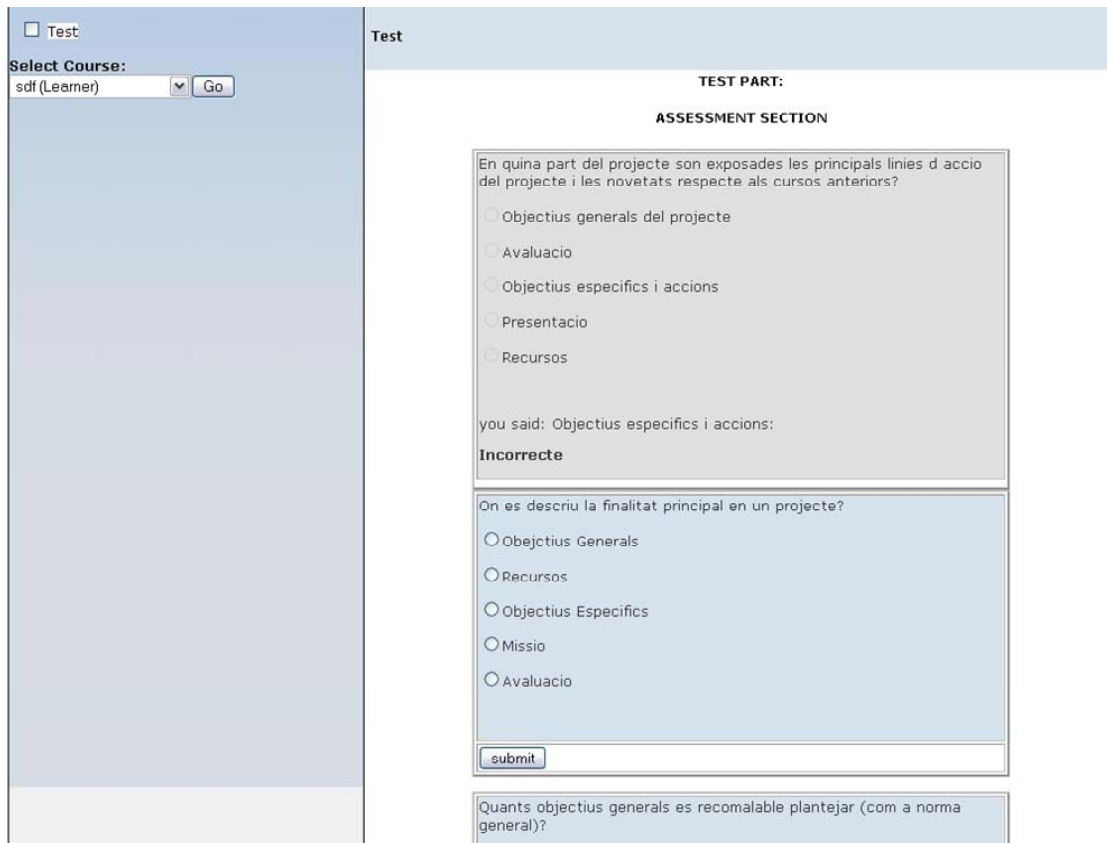
After the interaction with the PDP tool the data collected from the post test reflected that:

- The PDP tool has to offer private rights to the users. They would not agree to use the tool if for instance the human resource personnel can use it to check the personal training of an employee, at least until they do not finish the development of a competence profile.
- The tool offers the sufficient training functionalities, so as it allows the employees to develop the required competences to be promoted. They can practice competences to achieve a new job.
- The most valued activities were the self-assessment activities with QTI tests. The tests (an example of this type of activity is showed in Figure A.8.3) allow them to verify



automatically if they have achieved the goals to acquire the competence. The appreciated the feedback that each question showed and the final report result of the test.

- The majority of the participants think that the graphical interface of the PDP tool has to be improved. They propose that the interface has to guide better the user, and a reduced number of buttons will improve the usability of the tool. For instance: the PDP should have to guide the user doing the different steps adding numbers: 1) select goal, 2) self-assessment...). The step of generating their personal plan of activities has too many options.



**Figure A.8.3 Example of QTI test used in Doblevia**

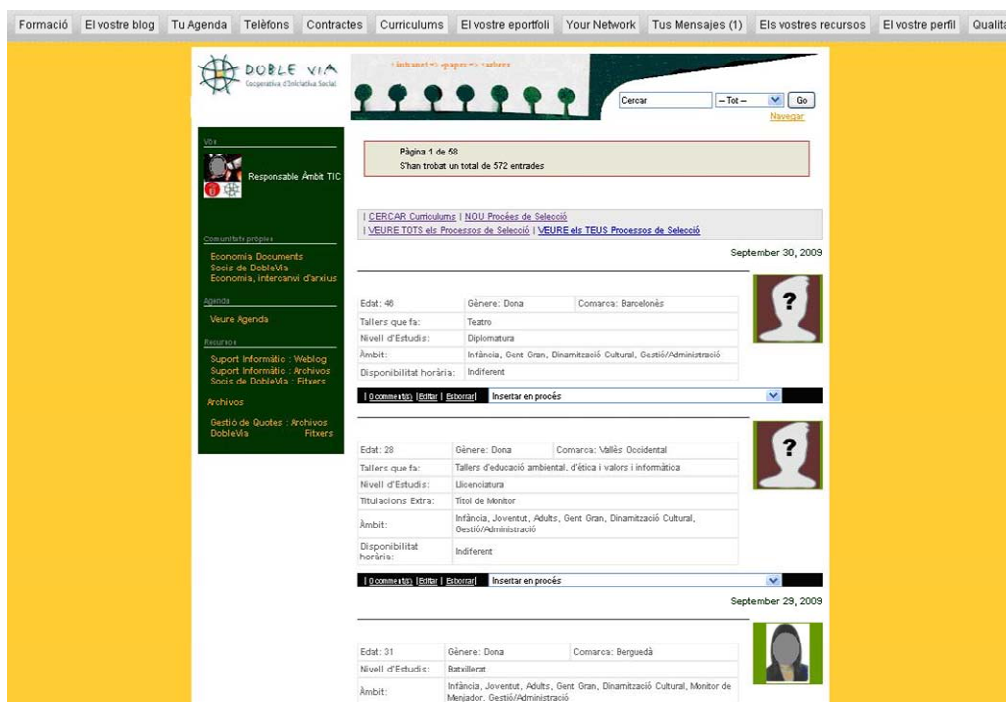
The main findings extracted from the interviews and the final discussions were:

- The participants agree on using the self-directed learning activities that the PDP offers from the distance. But they want some face to face activities associated to these competence profiles.
- They think that a useful functionality would be that other colleagues or superiors could recommend activities added to the already provided.
- The employees of the same team should have rights to see in the PDP the progress of the members of the team.
- In order to use the system from the distant, they would appreciate having supporting staff or tutors guiding them and giving feedback when they practice the activities in de PDP.

From the perspective of the organization, the study of the integration of a competence development tool has enabled to Doblevia to understand what new changes they have to introduce in their organization and their intranet.

An important element in an organization is the information contained in the curriculum of the employee. In the Doblevia's web portal there is a section for managing the curriculums of their

personnel. In this page (see Figure A.8.4) the human resource personnel can access to the employees' picture, and information about the current work position of the employee, their level of studies and personal data.



**Figure A.8.4** Doblevia's portal web, curriculum application

For Doblevia, a very important issue would be to connect the data of the PDP with the curriculum application. Enabling that the curriculum of the employee could be automatically updated, when indicated by the own employee, with the acquired competences practiced in the PDP tool. This functionality would enable to have a continuous update of the information of the curriculums. The employees would be motivated to practice new competences because they will know that their improvements will be reflected in this section.

The application process for job positions is very important in Doblevia. The human resource staff receives a list of candidates and they have to do a ranking of the best ones. This is a very long process and the staff has to invest big efforts. The TENCompetence environment introduces the possibility of automating all these tasks. It would be an interesting future application if the competences of the required profile can be matched with the competences that the different candidates have and the system selects the best matches automatically.

Other important functionalities for the human resource staff would be:

- To have the possibility of monitoring the rate of activities that seem not to be of interest of the employees. This means that if there are activities which almost never are marked as completed, then these activities have to be re-designed.
- An interesting functionality for the organization could also be one that reports the self-improvement capacity of their employees. An aspect of consideration by the human resource manager to promote an employee would be if they are more capable than others when acquiring new competences.

Despite these are important aspects for the organization, the findings of the preliminary evaluation show that employees want to decide when their personal information can be public to the employer. For instance they do not want to publish information like competences that they began to develop (performing some activities) but they did not finalized, or the time that they spent acquiring a competence.

The future work of this Business demonstrator includes populating the performing more evaluation experiences with the 10% of the Doblevia's personnel. Once the system will be accepted as the competence-development tool of this cooperative, they plan to contact with a company specialized in doing the specific competence material that Doblevia needs, and then include the new activities in the PDP.

The cooperative wants to work in a programme to promote the use of the tool, making possible that their workers could have a room and allocating part of the employees working hours for practicing the competences in the workplace.

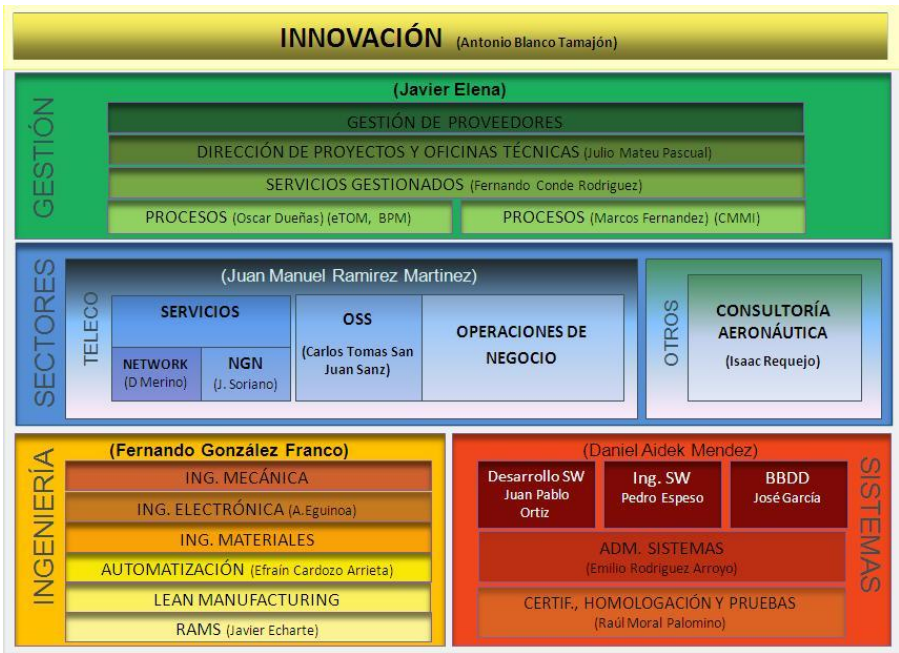
#### ***A.8.6 Data collection instruments***

- Questionnaires:
  - Pre-test: Quantitative and qualitative answers of the learners, before interacting with the system.
  - Post-test: Quantitative and qualitative answers of the learners, after interacting with the system.
- Discussion with participants: Wrotes taken during the discussion with participants.

## Appendix 9: Altran Business Demonstrator

### A.9.1 Description of the business demonstrator

**Table A.9.1 Description of the CEDEP Business Demonstrator**

<b>Altran Business Demonstrator</b>	
<p>Short description:</p> <p>The main objective is to study the advantages offered by the TENCompetence solutions when compared to the traditional systems used to manage CVs or those based on knowledge maps. The demonstrator will be carried out in several phases. In the first phase the focus will be on how it is possible to offer the learning plans more appropriate to the engineers depending on their mastered competences and goals. Other functionalities will be:</p> <ul style="list-style-type: none"> <li>Find the more appropriated experts to work in a determinate project</li> <li>Find experts to solve technical issues</li> <li>Find what job offers are more interesting for a concrete candidate</li> </ul>	
<p>Name and description of the Associate Partner</p>	<p>Altran is an organization of 900 employees, around 800 of them engineers that manage and develop projects in practically all the engineering fields. It is organized in four divisions: Aerospace and Defense, Industry, Telecommunications and Auto- motion. Each division with several knowledge areas. It offers to its clients three kind of services: project development, managed services, and consulting services.</p> <p>It is structured as shown in the figure below:</p>  <p>The organizational chart is structured as follows:</p> <ul style="list-style-type: none"> <li><b>INNOVACIÓN</b> (Antonio Blanco Tamajón) <ul style="list-style-type: none"> <li><b>GESTIÓN</b> (Javier Elena) <ul style="list-style-type: none"> <li>GESTIÓN DE PROVEEDORES</li> <li>DIRECCIÓN DE PROYECTOS Y OFICINAS TÉCNICAS (Julio Mateu Pascual)</li> <li>SERVICIOS GESTIONADOS (Fernando Conde Rodríguez)</li> <li>PROCESOS (Oscar Dueñas) (eTOM, BPM)</li> <li>PROCESOS (Marcos Fernandez) (CMMI)</li> </ul> </li> <li><b>SECTORES</b> (Juan Manuel Ramírez Martínez) <ul style="list-style-type: none"> <li><b>TELECO</b> <ul style="list-style-type: none"> <li><b>SERVICIOS</b> <ul style="list-style-type: none"> <li>NETWORK (D Merino)</li> <li>NGN (J. Soriano)</li> </ul> </li> <li><b>OSS</b> (Carlos Tomas San Juan Sanz)</li> <li><b>OPERACIONES DE NEGOCIO</b></li> </ul> </li> <li><b>OTROS</b> <ul style="list-style-type: none"> <li><b>CONSULTORÍA AERONÁUTICA</b> (Isaac Requejo)</li> </ul> </li> </ul> </li> <li><b>INGENIERÍA</b> (Fernando González Franco) <ul style="list-style-type: none"> <li>ING. MECÁNICA</li> <li>ING. ELECTRÓNICA (A. Eguinoa)</li> <li>ING. MATERIALES</li> <li>AUTOMATIZACIÓN (Efraín Cardozo Arrieta)</li> <li>LEAN MANUFACTURING</li> <li>RAMS (Javier Echarte)</li> </ul> </li> <li><b>SISTEMAS</b> (Daniel Aidek Mendez) <ul style="list-style-type: none"> <li><b>Desarrollo SW</b> (Juan Pablo Ortiz)</li> <li><b>Ing. SW</b> (Pedro Espeso)</li> <li><b>BBDD</b> (José García)</li> <li><b>ADM. SISTEMAS</b> (Emilio Rodríguez Arroyo)</li> <li><b>CERTIF., HOMOLOGACIÓN Y PRUEBAS</b> (Raúl Moral Palomino)</li> </ul> </li> </ul> </li> </ul> <p>Over these areas it has been created the Excellence Centres that brings together the experts in each area to capitalise the knowledge generated in the</p>

	<p>projects.</p> <p>The aim of this pilot is restricted to Aerospace division, mechanical engineering group (ING. MECÁNICA in the figure).</p>
User groups	<p>All the groups related with the training, managing and selection of the engineers, the employed engineers and the candidates. It is: Training Department, RRHH Department, Managers, Aeronautics Engineers and possible Candidates.</p>
Setting	<p>For this demonstrator the users will be selected from the Aerospace division in the mechanical engineering group to perform their competence development plans from their own workplace, either their own desk in Altran offices or in the client`s offices.</p>
Roles	<p>Possible roles involved in the pilot:</p> <p>Manager – 1 person</p> <p>Human Resource Responsible – 1 person</p> <p>Competence manager-1 person</p> <p>Learning technology experts (learning designer, content developer, teachers)- 2-4 people</p> <p>Engineers- 10 people</p>
Tooling	<p>PCM (create competence profiles and simple activities)</p> <p>PDP- to generate the personal development plan</p> <p>Liferay – to integrate tools</p>
Aim and expectation of the demonstrator	<p>Nine usage profiles apply to our demonstrator</p> <ul style="list-style-type: none"> <li>· follow course</li> <li>· create course</li> <li>· personal development plan</li> <li>· knowledge management</li> <li>· overview</li> <li>· e-portfolio</li> <li>· competence assessment</li> <li>· matching competence on job profiles</li> <li>· social help</li> </ul>
Context	<p>The main objective is to study the advantages offered by the TENCompetence solutions when compared to the traditional systems used to manage CVs or those based on knowledge maps.</p> <p>Actually we only consider instructed education and training type of learning.</p>
Business model / case shown in the demonstrator (as planned)	<p>As we have already commented Altran Technologies offers to its clients three kind of services: project development, managed services, and consulting services.</p> <p>In the three kinds of services the Altran engineers must have a set of requirements of knowledge and accumulated experience, that permit them to accomplish with success the challenges and difficulties of the projects. In this way, it is necessary to define the generic profiles to cover in the projects and concrete it with the particular knowledge and experience needed in each project. In the same way, the professional development of the engineers should be joined to its competences (knowledge and experience) and to the role that they have to play in the project.</p> <p>The demonstrator will be developed in three phases:</p> <p>Phase I</p> <p>In this first phase the Centre of Excellence for Mechanical Engineering of</p>

	<p>Altran Technologies in Spain will be involved.</p> <ul style="list-style-type: none"> <li>• How experts can be found by indicating some competences will be shown.</li> <li>• How the system offer to an engineer the right training courses for his competences and objectives will be shown.</li> <li>• How a manager can find the right candidates for a project introducing the expected competences will be shown.</li> <li>• How a candidate can receive, automatically, the right job offers for his knowledge will be shown.</li> </ul> <p>Phase II The demonstrator will be extended with information corresponding to the same competence areas from Altran CIS in Spain and another competence area will be included too.</p> <p>Phase III Real information over some engineers, job offers and training courses of the Experts Virtual Communities of Altran will be included into the demonstrator. We expect to demonstrate the utility and aided value of TENCompetence in big multinational companies distributed in multiple countries.</p>
Business / valorization opportunities	<p><b>Internal benefits</b> The benefits of this demonstrator pilot are mainly internal to the Altran Technologies organization:</p> <ul style="list-style-type: none"> <li>• Provision of a tool that facilitates the work of the managers and human resource department</li> <li>• Personnel mastering several competence profiles</li> <li>• Lifelong learning opportunities for its engineers.</li> <li>• Knowledge sharing among employees</li> <li>• Provision of a tool that facilitates the work of the training department.</li> <li>• Improvement of efficiency in project development as engineers will access to better training and will be able to receive support from experts.</li> </ul> <p>Of course, these benefits are also expected to enhance the quality and the response time in the services offered to the clients, mainly in the consulting services.</p> <p><b>Commercial Target</b> From a commercial point of view, Altran Technologies could use the TENCompetence concept and its tools by driving the offer mainly to a two kind of companies market:</p> <ul style="list-style-type: none"> <li>• Those enterprises dedicated to the HR and people selection like staffing agencies: This kind of companies could have interest in the TENCompetences concept and its tools, lie in all the improvements carried to find the more appropriated profiles from the definition of competences needed to cover the job offers. In this way, these companies could offer to its clients better fits of the profiles of the selected people to the demanded necessities in a shorter period of time.</li> <li>• Consulting and Engineering companies: The focus should be in medium and large enterprises (more than 250 employees) and multiple national or international head offices, with high number of</li> </ul>

	<p>projects and very high level of mobility of engineers from one project to another. The necessities that TENCompetence can cover in this kind of enterprises are similar to the ones studied in this Altran Technologies pilot. This are: Selection of external candidates to hire, definition and develop of the career development of the engineers, selection and assignment of the best professionals to work in a project, finding experts to give technical support to a determinate project, definition of the teaching requirements for each profile and assignation of the more appropriate courses for the engineers according to they competences and objectives.</p> <p><b>Business Model</b></p> <p>As TENCompetence is Open Source the Business Model should be based on a teaching or staff training model with a consulting work of the Altran Engineers in the client sites that includes:</p> <ul style="list-style-type: none"> <li>• Training in the TENCompetences concepts to the client personnel</li> <li>• Installation, configuration and customization of the TENCompetences tools that better fits the client necessities.</li> <li>• Training in the TENCompetences tools use</li> <li>• Collaboration with client to define its competences maps, ensuring the correct training of the client`s personnel in this disciplines and ensure that the client`s personnel acquire de necessary competences to develop this activities in the future.</li> <li>• Collaboration with client to define and to implant the learning paths needed to develop its business activities. This should be done, ensuring the correct training of the client`s personnel to still developing this learning paths by they own in the future.</li> </ul>
Relevance of TENCompetence for the demonstrator context	It represents an important change in the way of managing the competences that imply new and better activities in the selection processes of engineers to work in a project and in the definition of the training necessities. It will also improve support facilities.
Competence profiles and competences involved	<p>The competence profiles of the engineers in the area of study will be completely defined in the first phase of the pilot. An initial approach is shown below.</p> <p><b>Competence Profile ‘Technical Manager’</b></p> <ul style="list-style-type: none"> <li>• Should be an Engineer</li> <li>• Very deep and global knowledge of the Engendering Projects and Problems.</li> <li>• Capacity for rapid analysis</li> <li>• Knowledge of the tools and its capacities in the market</li> <li>• Knowledge of its company capacities</li> <li>• Knowledge of the Sector</li> <li>• Communication abilities</li> </ul> <p><b>Competence Profile ‘Project Manager’</b></p> <ul style="list-style-type: none"> <li>• Should be an Engineer</li> <li>• Being able to define the scope in terms of time and engendering</li> <li>• Project management skills</li> <li>• Being able to manage priorities</li> <li>• Being able to carry out the financial management of the project</li> <li>• Team management skills</li> </ul>



	<p>Competence Profile ‘Responsible for Analysis’: There are several specializations in this area (Lineal or not lineal, static, dynamic, thermal, stress, CFD (Computational Fluid Dynamics)...), the competences below refers to a concrete specialization.</p> <ul style="list-style-type: none"> <li>• Should be an Engineer</li> <li>• Deep technical knowledge</li> <li>• Experience Enough to identify critical points</li> <li>• Knowledge of its team capacities and limitations</li> <li>• Domain of at least one analysis tool</li> <li>• Knowledge of the applying standards and legislation</li> <li>• Knowledge of the components and mechanisms in the market</li> </ul> <p>Competence Profile ‘Responsible for Design’: There are several specializations in this area (Mechanisms (OptoMechanics, Criogenia and General), structural (Civil works, Mechanical, Aeronautics, Naval)...), the competences below refers to a concrete specialization.</p> <ul style="list-style-type: none"> <li>• Should be an Engineer</li> <li>• Expertise in sizing of the machine components</li> <li>• Keep updated of the commercial components</li> <li>• Knowledge of manufacturing</li> <li>• Knowledge of CAD tools and keep updated in the state of the art of this tools and techniques</li> <li>• Cost analysis skills</li> </ul> <p>Competence Profile ‘Analysis Engineer’: There are several specializations in this area (Lineal or not lineal, static, dynamic, thermal, stress, CFD (Computational Fluid Dynamics)...), the competences below refers to a concrete specialization.</p> <ul style="list-style-type: none"> <li>• Should be an Engineer</li> <li>• Knowledge in its specialization area</li> <li>• Domain of the analysis tool used in the project</li> <li>• Creativity to solve technical problems</li> <li>• Self-government in his work</li> <li>• Knowledge of the standards to be applied in the project</li> </ul> <p>Competence Profile ‘Designer’</p> <ul style="list-style-type: none"> <li>• Should be an Engineer</li> <li>• Domain of the CAD tool used in the project</li> <li>• Capacity to identify solutions</li> <li>• Rapid sizing capacities</li> <li>• Knowledge of the components and mechanisms in the market</li> </ul> <p>Competence Profile ‘draughtsman’</p> <ul style="list-style-type: none"> <li>• Not engineer degree needed</li> <li>• Good CAD tools use</li> <li>• Tidy and able to observe the restrictions of a Configuration Control System</li> </ul>
Training needs	<p>All products manuals will be needed (PCM, PDP, Web2.0, etc.). Localized versions of the software will be preferable. Training in the use of all tools, as well as constant help support service.</p>

Implementation plan	<p>Phase I</p> <ul style="list-style-type: none"> <li>To define and to map the Company's Competences in this area. (End of January 2009)</li> <li>Creation of Learning Paths in the area of Mechanical Engineering and the association of covered and required competences. (End of April 2009)</li> <li>Creation of the portfolio of Competences for a certain number of engineers with experience in the areas of interest. (Middle of May 2009)</li> <li>Mapping of required competences in some of our job offers in the areas of interest. (Middle of May 2009)</li> <li>Mapping of the competences of some candidates in the area of interest. (End of May 2009)</li> <li>System customization. (Middle June 2009)</li> </ul> <p>Phase II</p> <ul style="list-style-type: none"> <li>Extend to a new area not defined yet</li> <li>Extend to the same area in Altran CIS</li> <li>Extend to the Mechanical engineering area in other companies of Altran group in Europe.</li> </ul>
Evaluation plan	Questionnaires, interviews with participants and Analysis of the features of the tools in the Evaluation.
Could you mention one or more results with which you would consider your demonstrator a success?	<ul style="list-style-type: none"> <li>Improvement of a 20% in the time and effort dedicated by the managers to find the more appropriated profiles to cover the job offers.</li> <li>To obtain individualized training plans for each consultant.</li> <li>Improvement of one point in the results of the customer satisfaction survey in its consultants efficiency section.</li> </ul>

### A.9.2 Implementation

Only the three first points in the Phase I, has been carried out, mainly because of the tools did not support the other uses in the moment of the pilot implementation.

The planning was:

- To define and to map the Company's Competences in this area. (End of January 2009)
- Creation of Learning Paths in the area of Mechanical Engineering and the association of covered and required competences. (End of May 2009)
- Creation of the portfolio of Competences for a certain number of engineers with experience in the areas of interest. (Middle of Jun 2009)

The profiles corresponding to the Mechanical Engineering area of knowledge has been defined and mapped and the 8 participants in the pilot have been classified according to this map, see figure A.9.1.

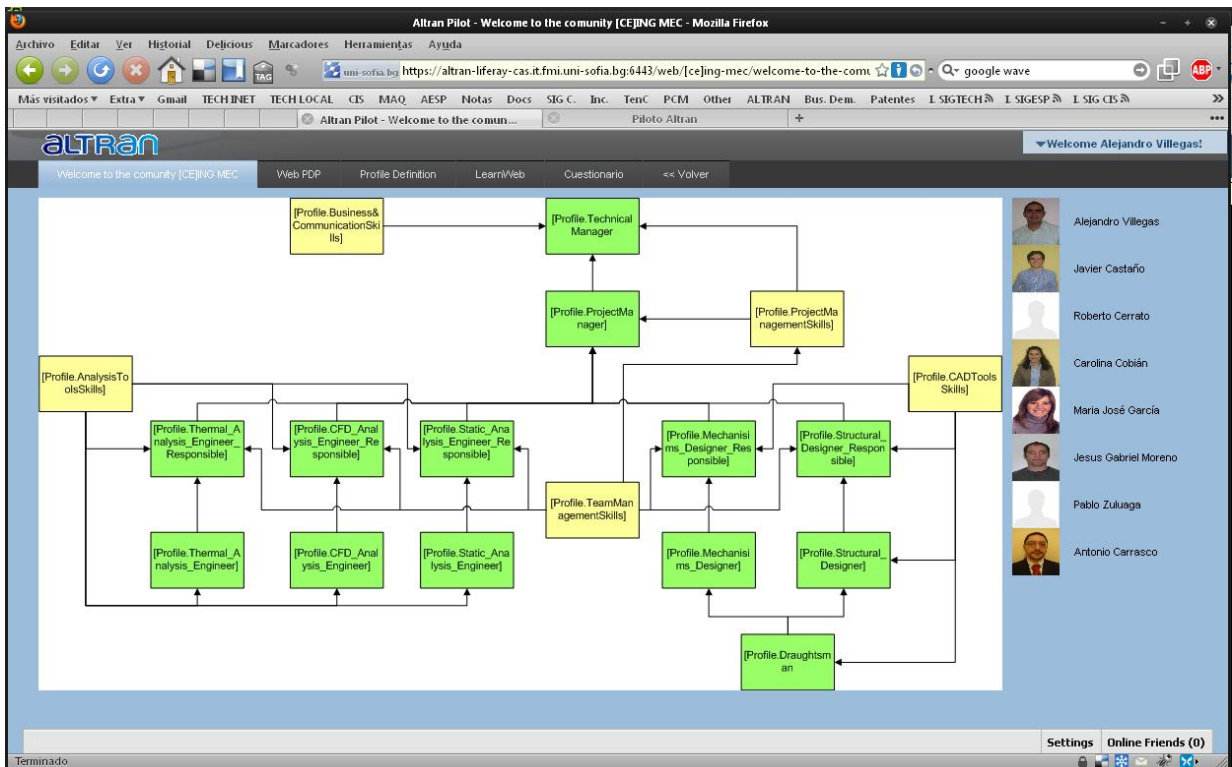


Figure A.9.1 Liferay integrating different tooling and resources, the screenshot shows a diagram showing the competence profiles and the participants in the pilot

The corresponding competences related to each profile, has been defined and detailed in a profile definition sheet as shown in Figure A.9.2.

## COMPETENCE PROFILE DEFINITION

Comunity	[CE]ING MEC	Community Title	[CE] Mechanical Engineering	
PROFILE CODE	[Profile.CADToolsSkills]	Profile Title	CAD Tools Skills	
DESCRIPTION				
Este es un perfil transversal necesario para varios perfiles de competencias. Es relativo a las herramientas de CAD utilizadas en ALTRAN				
PROFILES REQUIRED				
Profile Code	Need Evidence YES/NO	Profile Title		
COMPETENCES REQUIRED				
Competence Code	Competence Title	Need Evidence YES/NO	Activity Code	Comments
[competence.CATIA]	CATIA	YES	[ACT.PartDesignCatia]	
		YES	[ACT.AssemblyDesignCatia]	
[competence.IDEAS]	IDEAS	YES	[ACT.Ideas]	
[competence.Proengineer]	ProEngineer	YES		
[competence.SolidWorks]	Solid Works	YES	[ACT.SolidWorks]	
LIST OF ACTIVITIES AVAILABLE				
Activity Code	Activity Title			URL of Doc.
[ACT.PartDesignCatia]	[ACT.PartDesignCatia]PART DESIGN/DRAFTING (CATIA)			
[ACT.AssemblyDesignCatia]	[ACT.AssemblyDesignCatia] Assembly Design CATIA v5			<a href="https://sigtech.altran.es/geiper/reposit">https://sigtech.altran.es/geiper/reposit</a>
[ACT.Ideas]	[Act.Ideas] DISEÑO CON IDEAS			
[ACT.SolidWorks]	[ACT.SolidWorks] Curso de SolidWorks			<a href="https://sigtech.altran.es/geiper/reposit">https://sigtech.altran.es/geiper/reposit</a>

Figure A.9.2 Profile definition sheet

The profiles and the corresponding competences, has been inserted in the system by using PCM tool. Once all the profiles have been included into the system, each user generates one instance of the corresponding profile to manage his own carrier plan using PDP tool to complete the information about its competences.

Once the user has mapped its competences into the system and have defined the destination profile, they can perform a self-assessment to identify what activities or evidences have to report into the system to reach the destination profile.

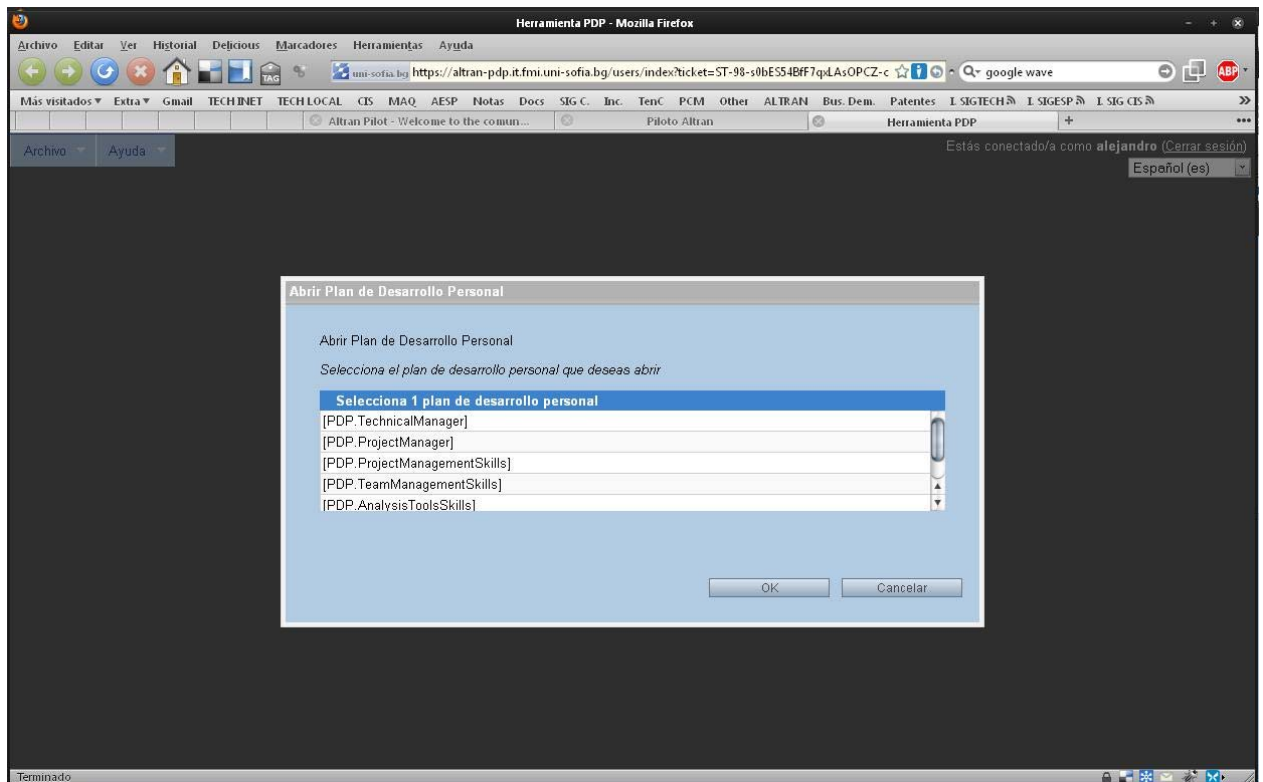


Figure A.9.3 PDP, selection of the competence profile

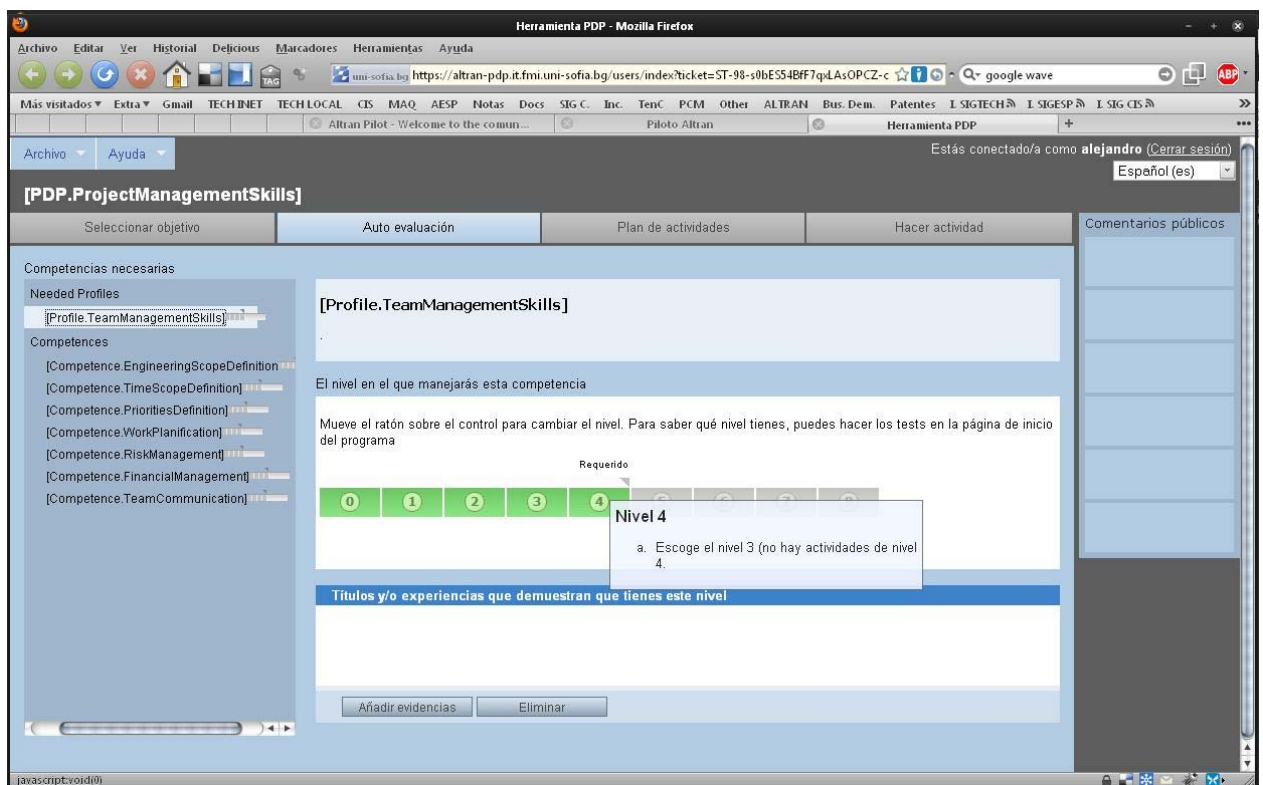
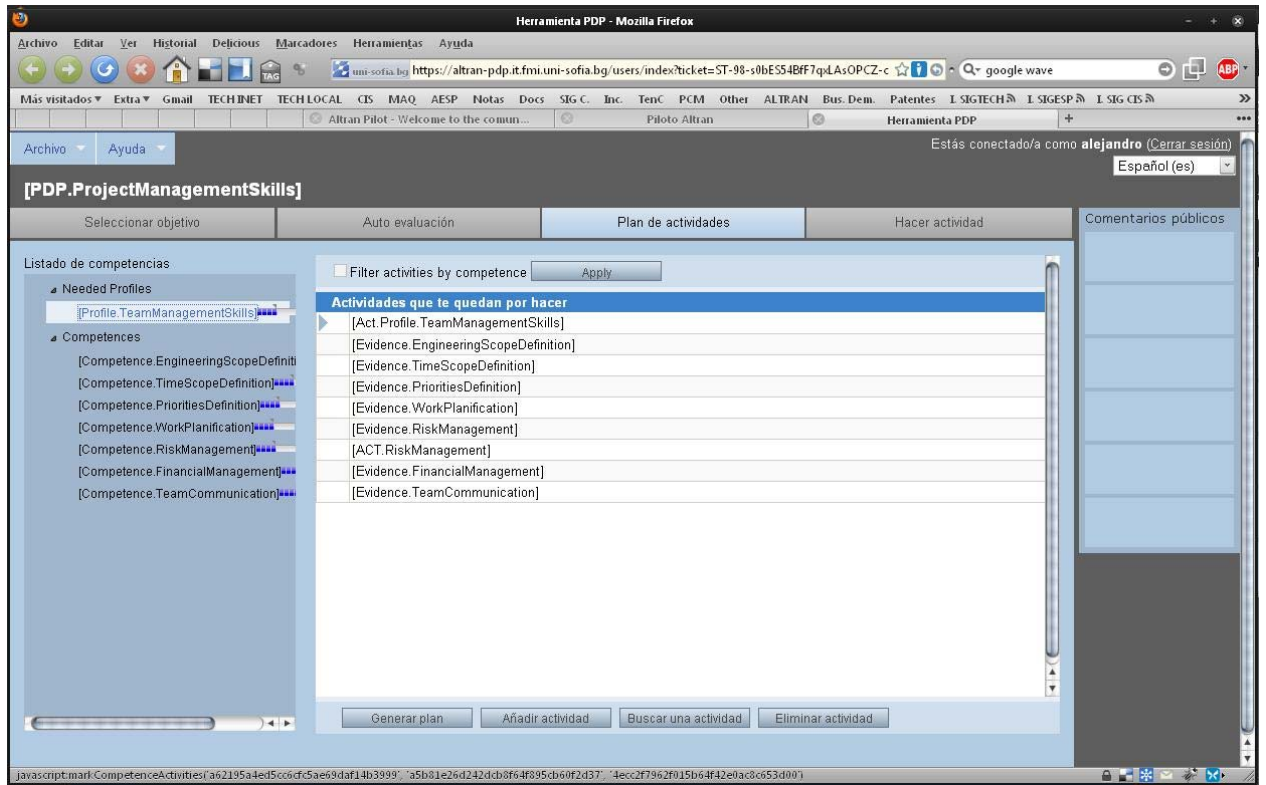


Figure A.9.4 PDP, self-assessment



**Figure A.9.4 PDP, plan of evidences and activities to reach the targeted competence profile**

### A.9.3 Evaluation methodology

The main instrument used to collect the evaluation data has been an evaluation questionnaire, besides the opinions collected during the pilot work period. This questionnaire has been sent to all the consultants involved in the demonstrator. The evaluation results shown in next section come from the analysis of these questionnaires.

### A.9.4 Evaluation results

The evaluation results of the Altran Business Demonstrator are presented in Table A.9.2 following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.9.2 Evaluation results of the ALTRAN Business Demonstrator**

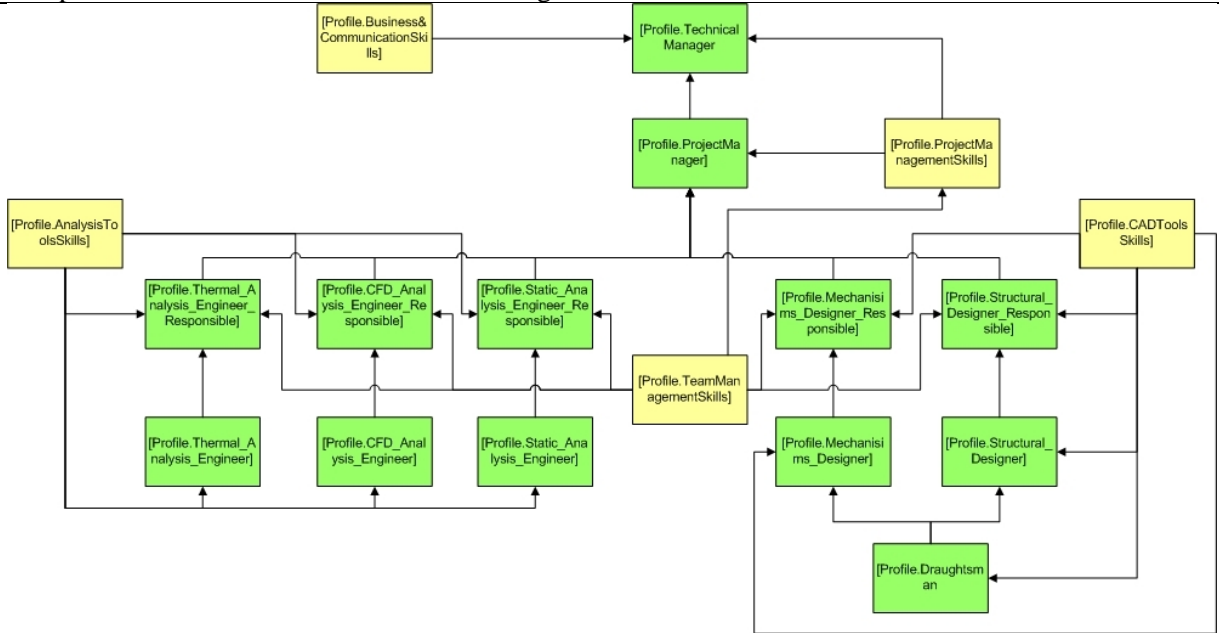
Q	Answers
3	8
4	Altran: (TENCompetence Team and Mechanical engineering group)
5	1) People with a need to develop some general or specific competences to perform their job better, to solve any type of problems or to learn to cope with specific situations. Also those with a need to improve their career, or a desire to change their jobs.
6	1) Groups who have to solve complex problems and tasks or have to cope with difficult situations in which group collaboration will increase the chance of successful performance. 2) Groups who want to support new/novice members in their teams. 4) Groups in companies who want to (or must) develop competences in order to perform better.
7	1) Organisations that want to disseminate and manage new and expert knowledge within the organisation / workplace. 2) Organisations that have to train personnel to learn or fulfill specific (new, complex or changing) job

	requirements. 3) Organisations that produce knowledge and want to manage the exploitation, management and dissemination of knowledge.
8	2
9	1 (overlapped)
10	1 (overlapped)
11	0
12	2 (overlapped)
13	1 Altran Learning Responsible (Define the competences profiles and the competences map)
14	Workplace
15	3-4 hours
16	18 PROFILES: PROJECT MANAGER MECHANISMS DESIGNER STATIC ANALYSIS ENGINEER CFD ANALYSIS ENGINEER THERMAL ANALYSIS ENGINEER MECHANISMS DESIGNER RESPONSIBLE STATIC ANALYSIS RESPONSIBLE CFD ANALYSIS RESPONSIBLE THERMAL ANALYSIS RESPONSIBLE STRUCTURAL DESIGNER RESPONSIBLE STRUCTURAL DESIGNER DRAUGHTSMAN CAD TOOLS SKILLS TEAM MANAGEMENT SKILLS BUSINESS AND COMMERCIAL SKILLS PROJECT MANAGEMENT SKILLS ANALYSIS TOOLS SKILLS TECHNICAL MANAGER
17	45 COMPETENCES Engineer Degree Capacity to identify solutions Rapid Sizing Capacities Knowledge of components and mechanisms in the market Knowledge and experience designing mechanisms Knowledge in Static Calculus Creativity to solve technical problems Knowledge of the standards to be applied in the Project Knowledge in CFD Calculus Knowledge in Thermal Calculus Knowledge in Manufacturing Cost Analysis Skills Experience enough to identify analysis critical points Knowledge of the applying legislation Knowledge and experience designing structures Tidy an be able to observe the restrictions of configuration control systems CATIA IDEAS ProEngineer Solid Works Ability to manage the competences of the team members Team Working capacities Ability to manage conflicts



	Task Assignment capacities Work Evaluation capacities Sales Skills Negotiation abilities Business Communication Abilities Client Conflict Management Abilities Decision Making Skills Engineering Scope Definition Capacities Time Scope Definition Capacities Priorities Definition Abilities Work Planning Capacities Risk Management Capacities Financial Management Capacities Team Communication Abilities NASTRAN PATRAN ANSYS ADAMS DITRAN Very deep and global knowledge of the engineering projects and problems. Knowledge of its company capacities in the area of the Project Knowledge of the Sector
18	16 Actividades Mechanisms Designer course CFD Analysis Engineer [Act.Profile.AnalysisToolsSkills] [Act.Profile.CADToolsSkills] [ACT.PartDesignCatia]PART DESIGN/DRAFTING (CATIA) [ACT.AssemblyDesignCatia] Assembly Design CATIA V5 [Act.Ideas] DISEÑO CON IDEAS [ACT.SolidWorks] Curso de SolidWorks Gestión de Conflictos como Project Manager Curso de PMI Habilidades del Trabajo en equipo Gestión de equipos Gestión de Conflictos Curso Nastran Patran Curso de I-DEAS Curso de ANSYS
19	2
20	N/A
21	2
22	N/A
23	8
24	N/A
25	N/A
26	8: Using liferay only as the access portal and to show the global competences profile map.
27	N/A
28	Only the personal carrier development plan has been created, now they know the learning actions and courses they should follow.
29	N/A
30	1) how many like to continue with the approach 0 2) how many won't like to continue with the approach 8 3) how many are undecided to continue with the approach 0



	Although the TENCompetence tools have been useful to draw the personal development plans, the lack of connection of these tools with the corporative tool (SIG) makes it very difficult to identify the desired courses/learning actions. On the other hand the tools were not usable enough as described by the participants.
31	1) how many appreciate positively the learning experience based on TENC 0 2) how many are neutral regarding the learning experience based on TENC 3 3) how many rate the learning experience based on TENC as negative 5  See comment to previous question.
32	N/A
33	Reflecting on competences
34	Human resource development (like self-organised learning but with pre-defined goals and pre-selected learning offers)
35	N/A
36	MECHANICAL ENGINEERING GROUP 10-50 permanent staff
37	A department of a National Governmental Organisation
38	
39	The main objective is to study the advantages offered by the TENCompetence solutions when compared to the traditional systems used to manage CVs or those based on knowledge maps.
40	1) improving a specific competence of its current job 2) improving a specific competence for a new job 5) assessing their competences 6) reflecting on their competences 7) receiving support for some non-trivial problem
41	N/A
42	Company training and knowledge Management Departments
43	1) how many like to continue with the approach 0 2) how many won't like to continue with the approach 3 3) how many are undecided to continue with the approach 0 The definition of all possible professional profiles in the company is too big to develop it with the TENCompetences tools in a reasonable time. The tools require too many hours of definition work. Besides this, constant support to the users is needed. Some of the main uses that Altran wants to give to these tools were not supported, at least in the versions used in the pilot.

44	1) how many appreciate positively their working experience based on TENC 3 2) how many are neutral regarding their working experience based on TENC 0 3) how many rate the working experience based on TENC as negative 0 The profile and competences definition concepts are considered as very positive offering grate possibilities to the categorization of the staff and the preparation of learning paths.
45	N/A
46	Training internal or external and Knowledge management
47	N/A
48	8
49	0
50	0
51	0
52	<ul style="list-style-type: none"> <li>• Improvement of a 20% in the time and effort dedicated by the managers to find the more appropriated profiles to cover the job offers: Not Successful</li> <li>• Improvement of one point in the results of the customer satisfaction survey in its consultants efficiency section: Not Successful</li> <li>• To obtain individualized training plans for each consultant: Partially Successful</li> </ul> <p>The two first issues are not successful because the tools do not permit the implementation and mapping of the profiles with the job offers.</p> <p>The third one is considered partially successful because of the tools facilitate the definition of the learning paths, but it can't be easily linked to the courses planned in the training tools of the company. Qualitative comments of the participants include "I think that the approach would be helpful to orientate junior engineers", "I think that the system needs improvements but I can see its utility if it is integrated in our internal SIG since I would allow us to define much better own carrier plans and what learning actions are more appropriate for each of us"</p>

### **A.9.5 Discussion**

The expectations and plans of the Altran Business Demonstrator were clearly ambitious. The Mechanical Engineering Department together with the Knowledge Management / Human Resources Department saw TENCompetence as an opportunity to complement they already available system. The aim was twofold. They expected on the one hand to be able to match competence maps of professional profiles (or job offers) they needed for specific projects with the engineers' CVs (competence they master). On the other hand, they wanted their engineers to be able to create their individualized training plans.

During the implementation of the system, the Altran staff (HRM and technical) in charge of setting up the demonstrator already noticed that TENCompetence approach did satisfy their second objective but not the first one. An extensive work of defining the competence profiles and competences and configuring the system was performed by the Altran staff. Moreover, a total of 8 mechanical engineers participated in the pilot experience. Both the Altran staff in charge of supporting the pilot and the participants agreed on that the area in which TENCompetence provides value to them is that of the provision of personalized competence / carrier development plans. In order to be the TENCompetence approach adopted by the organization a set of steps would be needed to carry out, including the integration with their already available system.

### A.9.6 Data collection instruments

The main tool used to collect the evaluation results has been a questionnaire, since the questionnaire is in Spanish only a screenshot of part of it is shown in Figure A.9.5.

altran

Welcome to the community [CE]ING MEC Web PDP Profile Definition LearnWeb **Questionario** << Volver

## Questionario Demostrador TENCompetence

Por favor, rellena el siguiente formulario sobre el demostrador de Tencompetence para el centro de excelencia de ingeniería mecánica

\* Required

Nombre y Apellidos \*

¿Cuántas horas has utilizado la herramienta? \*

<1

Valoración General

Valora de 1 a 5 (1 mínimo, 5 máximo) si te ha sido de utilidad la herramienta

1

Te ha servido la herramienta para identificar tu plan de carrera óptimo (1mínimo-5máximo)

1

Figure A.9.5 Evaluation questionnaire used in the Altran Business Demonstrator

## Appendix 10: Empower Limburg Business Demonstrator

### A.10.1 Description of the business demonstrator

Table A.10.1 Description of the Empower Limburg Business Demonstrator

Empower Limburg Business Demonstrator	
<p>Short description:</p> <p>The OUNL together with public- and private sector partners from the Limburg region - the Empower Limburg consortium – implemented this business demonstrator to improve mobility of middle managers between its partner organizations. The PDP tool was used in this demonstrator, together with experimental procedures on how to define shared competence profiles between organizations.</p> <p>For this specific pilot four competence profiles have been defined between the eight participating partner organizations: for 'Operational Manager', 'Tactical Manager', 'Human Resource Manager', and 'Senior Human Resource Manager'. The demonstrator will address a mix of use cases: people wanting to keep up to date; people looking for a promotion; and people considering to change jobs.</p> <p>A total of 25 participants have joined the first run of the pilot. For each of the participants a personal development programme is compiled.</p> <p>Learning opportunities included specially designed non-formal learning activities at one of the other partner organizations (internship); specially designed non-formal learning activities at one's own work place; and formal courses and training activities.</p>	
Name and description of the Associate Partner	<p><b>Empower Limburg.</b></p> <p>The Empower Limburg Foundation comprises 20 organisations from local and provincial government, the health sector, the education sector, the Limburg SME-umbrella organization, etc.</p> <p>The aim of the Foundation is to improve employability and mobility of the Limburg labour market through joint regional HRM analysis and planning, training and education activities, and fostering a favourable business infrastructure.</p> <p>Eight out of 20 member organizations participate in the business demonstrator 'Developing regional competence profiles':</p> <ul style="list-style-type: none"> <li>• Mondriaan Zorg Groep (health insurance)</li> <li>• Centraal Bureau voor de Statistiek (National Bureau of statistics)</li> <li>• Provincie Limburg (the province of Limburg)</li> <li>• UWV (labour market re-integration)</li> <li>• Onderwijsstichting Movare (foundation managing 60 primary schools)</li> <li>• Open Universiteit (open university)</li> <li>• Gemeente Maastricht (Maastricht city council)</li> <li>• Licom NV (labour market re-integration)</li> </ul>
User groups	<p>For this demonstrator four competence profiles have been defined between the eight participating partner organizations:</p> <ul style="list-style-type: none"> <li>• Operational Manager</li> </ul>

	<ul style="list-style-type: none"> <li>• Tactical Manager</li> <li>• Human Resource Manager</li> <li>• Senior Human Resource Manager</li> </ul>
Setting	<p>The location of the pilot is the Limburg region. The participants will combine a number of activities in their personal competence development: on-the-job training; internship at partner organizations; formal education and training; and forming ad-hoc study groups.</p>
Roles	<p>The following activities and related roles are performed in executing the demonstrator:</p> <ul style="list-style-type: none"> <li>• Project management by a 2 part-time project managers from one of the participating organizations.</li> <li>• Competence profile development by HR professionals from the eight partner organizations, moderated by OUNL</li> <li>• Online tools configuration (TENC PDP and LifeRay portal) by OUNL system manager</li> <li>• Tools-Helpdesk by OUNL system manager</li> <li>• Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by OUNL's Faculty of Management Sciences</li> <li>• Tutoring of the blended 'mini modules'</li> <li>• Internship coordination by a part-time coordinator from one of the participating organizations</li> <li>• Career coaching by three part-time coaches from the participating organizations.</li> </ul>
Tooling	<p>The TENC PDP tool and the LifeRay portal are used in this demonstrator. The LifeRay portal supports online community functions like: news; 'who is who'; an online 'market place' for internships, mini-modules, and study groups; sharing resources on the four competence profiles and professions; supporting the creation of online sub-groups; links to professional development tools like self-tests and the Europass CV; a 'My Empower' to store personal resources and build up a portfolio. The LearnWeb2.0 and the LD tools are not used in this demonstrator because the participants are very basic computer users and in this demonstrator the learning resources were already available (no further materials/activities to develop are needed) These tools contribute to the following:</p> <ul style="list-style-type: none"> <li>• Support new pedagogical &amp; organisational models for Lifelong Competence Development - through the mix of on-the-job, internships and (blended) formal training and learning</li> <li>• Support individuals to search the most suitable formal and informal learning activities - by offering a range of development opportunities linked to competence-levels, from which the individual can pick - and add</li> <li>• Stimulate pro-active sharing of resources - through the social processes supported through LifeRay</li> <li>• Support competence assessment - which is a standard function in the PDP</li> <li>• Provide various forms of user support services - comprising competence self-assessment through the PDP; 360 feedback on competence profile (paper based); f2f carrier coaching services;</li> </ul>

	<p>internship coordination; tutoring of formal training and education.</p> <ul style="list-style-type: none"> <li>• Provide decentralized, self-organised management - through the provision of LifeRay in which individuals can communicate, cooperate, and form sub-groups.</li> <li>• Integrate isolated models &amp; tools from different areas - the demonstrator integrates (blended) learning tools (e.g. Blackboard as VLE, HRM tools (various assessment instruments and coaching sessions) and competence development tools (PDP).</li> </ul>
Aim and expectation of the demonstrator	<p>The aim of the demonstrator is to upgrade the level. Specific job profiles to be addressed in the pilot are those of 'Operational Manager', 'Tactical Manager', 'Human Resource Manager', and 'Senior Human Resource Manager'.</p> <p>At the end of the pilot the participants should have:</p> <ul style="list-style-type: none"> <li>• decreased their competence gaps related to the profile they selected at the start of this pilot</li> <li>• extended their professional network through participation in their profile community</li> <li>• increased their mobility through secondments/internships</li> </ul> <p>Learning opportunities will include specially designed non-formal learning activities at one of the other partner organizations (internship); specially designed non-formal learning activities at one's own work place; and formal courses and training activities.</p>
Context	<p>The pilot context is a network of public and private sector organizations that defined a shared problem in the area of middle/senior management. The nature of the problem however, is different for each of them, e.g.:</p> <ul style="list-style-type: none"> <li>• Ageing: most senior managers will leave the organization within the coming five years, and thus middle management has to be developed (vertical mobility)</li> <li>• Retaining young potentials: most recruited young middle managers leave the organization within a year, thus have to be provided with a more challenging (personal development) environment</li> <li>• Changing environment: present middle managers are not flexible enough to meet today's demands, and need to be upgraded (provided their personality allows this)</li> <li>• Lay-offs: because of a merger, a number of managers will be made redundant, thus they should increase their horizontal mobility</li> </ul> <p>The pilot aims to address all of these through the various types of activities planned in the project.</p>
Business model / case shown in the demonstrator	<p>The major business case for the demonstrator is to retain high-quality professionals for the region, and to balance staff needs (shortages and redundancies) between the participating organizations over time by improving mobility between them.</p> <p>During the demonstrator the costs side is as follows: The Empower Limburg partners provide funding for the small secretariat of the Foundation that initiated the pilot. In addition, all participating organizations provide staff time for the coordination group, and three organizations also provide the services (1 day/week) of career coaches. The e-tooling services are provided by OUNL/TENCompetence. The partner organizations in principle have agreed to provide opportunities for mutual secondments/internships.</p>

	All eight organizations have staff participating in the pilot. Each participant has an individual budget from his/her employer to finance any formal courses and/or training activities.																																																																																																																																																																
Business / valorization opportunities	None																																																																																																																																																																
Relevance of TENCompetence for the demonstrator context	<p>TENCompetence contributes to the pilot in three areas specifically:</p> <ol style="list-style-type: none"> <li>1. Moderation in defining four shared competence profiles between the eight partner organizations</li> <li>2. Providing, configuring and hosting the PDP for: <ol style="list-style-type: none"> <li>1. Self assessment on each individual competence</li> <li>2. Gap analysis on the complete competence profile</li> <li>3. Defining a personal development plan</li> </ol> </li> <li>3. Providing wider online community services through configuring and hosting the LifeRay portal</li> </ol>																																																																																																																																																																
Competence profiles and competences involved	<table border="1"> <thead> <tr> <th></th><th>Function:</th><th>Operational Manager</th><th>Tactical Manager</th><th>HR Advisor</th><th>Senior HR Advisor</th></tr> </thead> <tbody> <tr> <td>#</td><td>Competence:</td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td></td><td colspan="4">Development level</td></tr> <tr> <td>1</td><td>Focused action</td><td>2</td><td>3</td><td>2</td><td>2</td></tr> <tr> <td>2</td><td>Flexibility</td><td></td><td></td><td>2</td><td>2</td></tr> <tr> <td>3</td><td>Individual-directed leadership</td><td>3</td><td>2</td><td></td><td></td></tr> <tr> <td>4</td><td>Initiatif</td><td></td><td></td><td>2</td><td>3</td></tr> <tr> <td>5</td><td>Integral working</td><td></td><td></td><td>2</td><td>3</td></tr> <tr> <td>6</td><td>Integrity</td><td></td><td></td><td>3</td><td>3</td></tr> <tr> <td>7</td><td>Customer orientation</td><td>2</td><td></td><td>2</td><td>3</td></tr> <tr> <td>8</td><td>Management identification</td><td>2</td><td></td><td>2</td><td>3</td></tr> <tr> <td>9</td><td>Motivating</td><td></td><td>3</td><td></td><td></td></tr> <tr> <td>10</td><td>Networking skills</td><td>1</td><td>2</td><td></td><td></td></tr> <tr> <td>11</td><td>Environmental sensitivity</td><td></td><td>2</td><td>2</td><td>3</td></tr> <tr> <td>12</td><td>Negotiating</td><td></td><td>2</td><td>2</td><td>2</td></tr> <tr> <td>13</td><td>Entrepreneurship</td><td></td><td>2</td><td></td><td></td></tr> <tr> <td>14</td><td>Staff development</td><td>3</td><td></td><td></td><td></td></tr> <tr> <td>15</td><td>Organisational sensitivity</td><td>2</td><td>2</td><td>2</td><td>3</td></tr> <tr> <td>16</td><td>Persuasion</td><td>2</td><td>2</td><td></td><td></td></tr> <tr> <td>17</td><td>Planning and organising</td><td>2</td><td></td><td>2</td><td>2</td></tr> <tr> <td>18</td><td>Problem analysis</td><td></td><td></td><td>2</td><td>2</td></tr> <tr> <td>19</td><td>Team building</td><td>2</td><td>2</td><td></td><td></td></tr> <tr> <td>20</td><td>Innovativeness</td><td></td><td>2</td><td></td><td></td></tr> <tr> <td>21</td><td>Vision</td><td></td><td>2</td><td>2</td><td>3</td></tr> <tr> <td>22</td><td>Progress monitoring</td><td>2</td><td></td><td></td><td></td></tr> <tr> <td>23</td><td>Quality assurance</td><td>2</td><td></td><td></td><td></td></tr> </tbody> </table> <p>Each of these 23 competences is described (in Dutch) comprising:</p> <ul style="list-style-type: none"> <li>• Brief description (2-3 lines)</li> <li>• Definition of the three levels, with for each level: 1-line description, 5-6 behavioural indicators (used for the self assessment in the PDP)</li> </ul>						Function:	Operational Manager	Tactical Manager	HR Advisor	Senior HR Advisor	#	Competence:							Development level				1	Focused action	2	3	2	2	2	Flexibility			2	2	3	Individual-directed leadership	3	2			4	Initiatif			2	3	5	Integral working			2	3	6	Integrity			3	3	7	Customer orientation	2		2	3	8	Management identification	2		2	3	9	Motivating		3			10	Networking skills	1	2			11	Environmental sensitivity		2	2	3	12	Negotiating		2	2	2	13	Entrepreneurship		2			14	Staff development	3				15	Organisational sensitivity	2	2	2	3	16	Persuasion	2	2			17	Planning and organising	2		2	2	18	Problem analysis			2	2	19	Team building	2	2			20	Innovativeness		2			21	Vision		2	2	3	22	Progress monitoring	2				23	Quality assurance	2			
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Training needs	<p>The following training needs have been identified:</p> <ul style="list-style-type: none"> <li>• Career coaches and pilot participants need a manual on how to install and use the PDP</li> <li>• Everyone performing a role in LifeRay needs a manual and possibly some training on configuration of the personal work space.</li> </ul>																																																																																																																																																																



Implementation plan	<p>The four joint competence profiles were developed in October-November 2008, after which the PDP was configured. The internal kick-off (with the partner organizations) took place on December 2, 2008, while the actual participants first met on December 15. During this kick/off the PDP was demonstrated, and each participant received a CD and installation manual for the PDP.</p> <p>Actual activities started mid January 2009 with the first sessions with the career coaches. By mid March about half of the participants had compiled their PDP, when they met for the second time as a group. A first version of the LifeRay community environment was demonstrated during this meeting, and will be further developed the coming weeks.</p> <p>The coming month (April) almost all participants are expected to complete their PDP (The PDP results in a personal shortlist of development activities -a Personal Development Plan- comprising development activities related to each identified competence gap), and start selecting the internships, define their on-the-job projects, and subscribe to the mini-modules.</p> <p>The overall Empower pilot is expected to run for a year.</p>
Evaluation plan	<p>Evaluation in fact already takes place continuously through participation in the overall project coordination (evaluation of the pilot at business level) and through the help desk function (evaluation at the tool-level: both technical and user-aspects).</p> <p>The evaluation of the TENC-demonstrator component in the pilot will form part of the overall pilot evaluation, which is expected to cover:</p> <ul style="list-style-type: none"> <li>• Impact on participants themselves</li> <li>• Impact on participants in their work or other context</li> <li>• Impact on organization whose employees (and other contexts whose members) are involved</li> <li>• Impact on providers who delivers services</li> <li>• Impact on business opportunities</li> </ul>
Could you mention one or more results with which you would consider your demonstrator a success?	See last row of table A.10.2

### A.10.2Implementation

The TENCompetence contribution to the Empower pilot comprised:

- Facilitating a two-day workshop to define shared competence profiles between the eight partner organizations
- Installation, configuration, manual production and instruction on using the first (client-server) PDP version
- Help-desk function for the PDP
- Installation and help desk function for the web-based PDP (replacing the client-server version)

- Design, configuration, hosting and manual production for the online pilot community in Liferay
- Contributing to the formative pilot evaluation

Screenshots of the tools as used in the demonstrator are available in Figures A.10.1, A.10.2, A.10.3 and A.10.4.

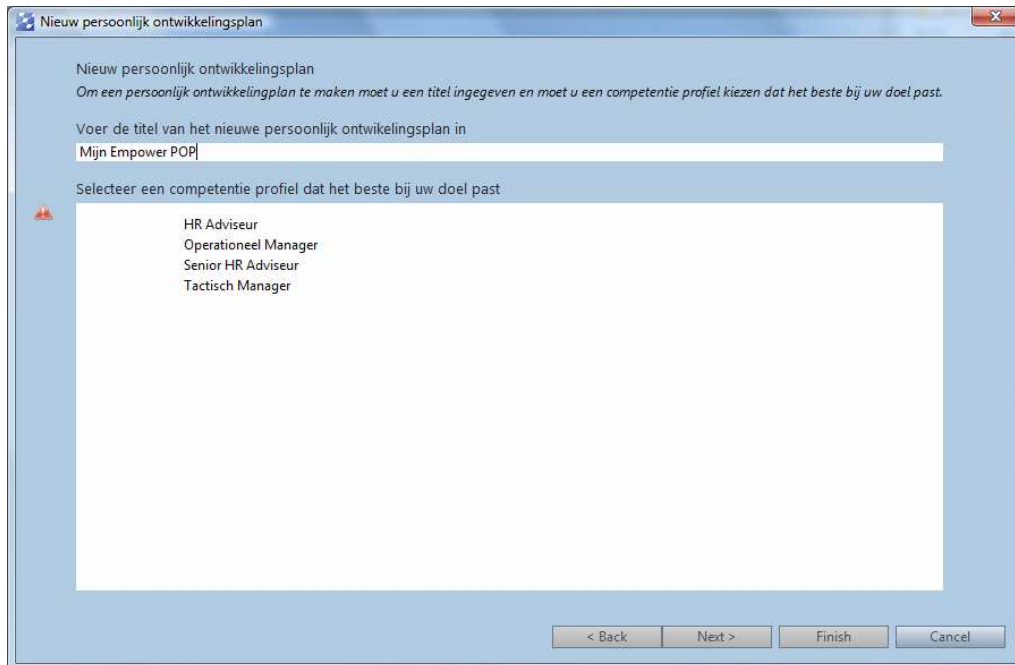


Figure A.10.1 PDP tool with the list of competence profiles available

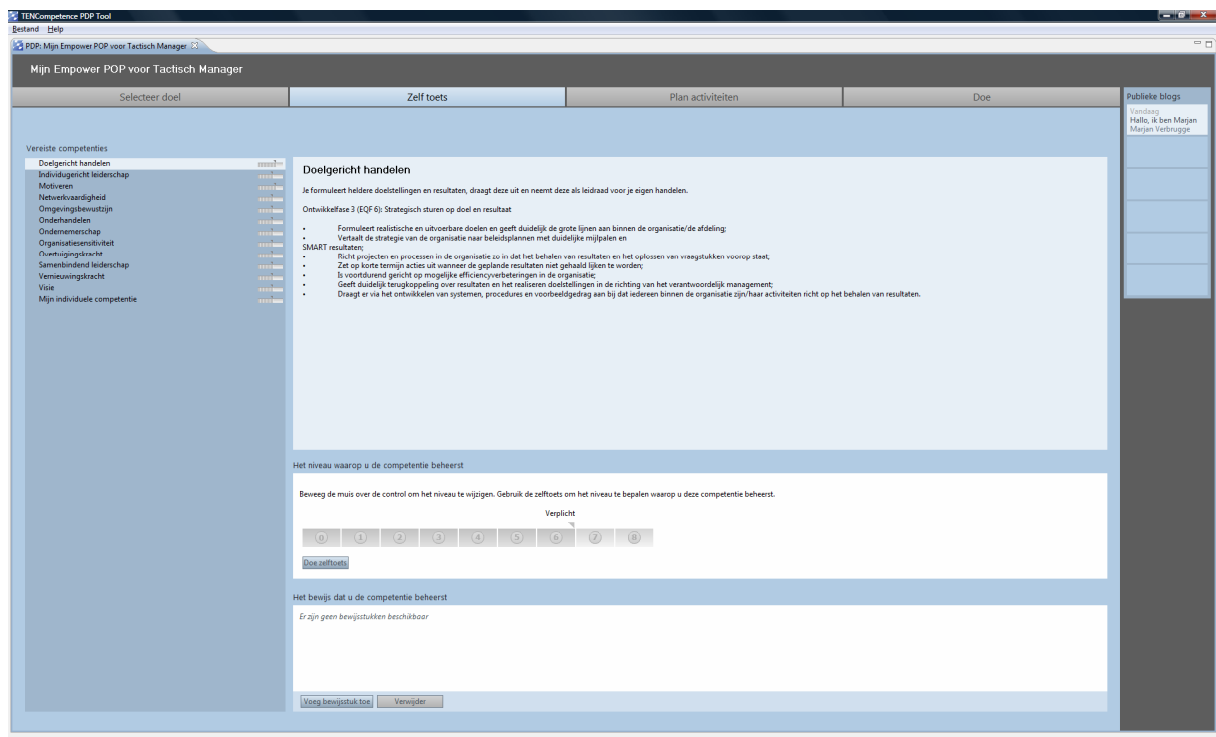
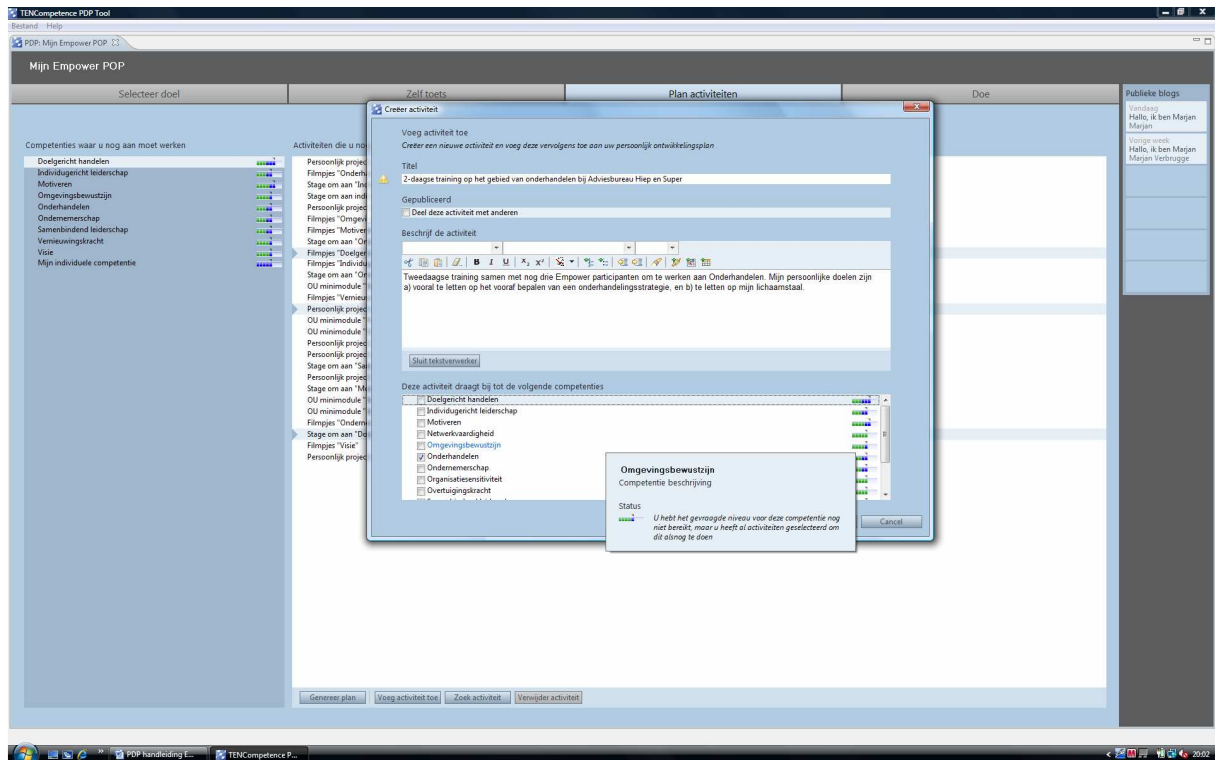
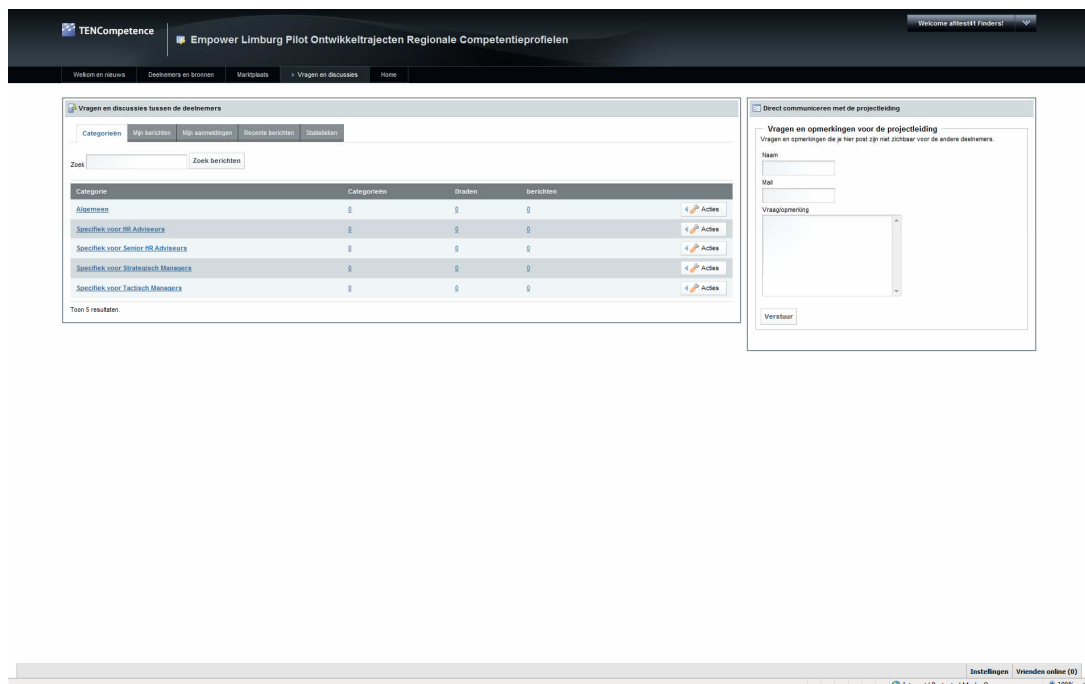


Figure A.10.2 PDP tool, self-assessment tab with the description of each competence and the possibility of selecting the proficiency level



**Figure A.10.3 PDP tool, creating the personal development plan**



**Figure A.10.4 Liferay system used in the Empower Limburg demonstrator**

### **A.10.3 Evaluation methodology**

The evaluation of PDP use was integrated in the wider (formative) evaluation of the Empower pilot. Data were collected through an extensive questionnaire. The questions specifically related to TENCompetence tooling were directly translated from the impact indicators as contained in Appendix 1.

### A.10.4 Evaluation results

The evaluation results of the Empower Limburg Business Demonstrator are presented in Table 10.4 following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.10.2 Evaluation results of the Empower Limburg Business Demonstrator**

Q	Answers
3	23, but only 19 were included in the questionnaire as the other 4 never attended meetings
4	<p>Eight organizations to participate in the demonstrator providing learners:</p> <ul style="list-style-type: none"> <li>• Mondriaan Zorg Groep (health insurance)</li> <li>• Centraal Bureau voor de Statistiek (National Bureau of statistics)</li> <li>• Provincie Limburg (the province of Limburg)</li> <li>• UWV (labour market re-integration)</li> <li>• Onderwijsstichting Movare (foundation managing 60 primary schools)</li> <li>• Open Universiteit (open university)</li> <li>• Gemeente Maastricht (Maastricht city council)</li> <li>• Licom NV (labour market re-integration)</li> </ul> <p>Two organizations - OUNL and Hogeschool Zuyd - also provided content (short courses and training)</p>
5	<p>Reasons given to participate in the demonstrator on a scale of 1-4:</p> <ul style="list-style-type: none"> <li>• Develop my competences with a clear aim: 1.43 (n=14)</li> <li>• Want to share my knowledge with others: 2.434 (n=14)</li> <li>• Want to get a formal qualification: 3.5 (n=12)</li> <li>• Want to develop my competences out of sheer interest: 2.69 (n=13)</li> </ul>
6	None, all individuals
7	<p>Organizations participating in the demonstrator:</p> <ul style="list-style-type: none"> <li>• Mondriaan Zorg Groep (health services)</li> <li>• Centraal Bureau voor de Statistiek (National Bureau of statistics)</li> <li>• Provincie Limburg (the province of Limburg)</li> <li>• UWV (labour market re-integration)</li> <li>• Onderwijsstichting Movare (foundation managing 60 primary schools)</li> <li>• Open Universiteit (open university)</li> <li>• Gemeente Maastricht (Maastricht city council)</li> <li>• Licom NV (labour market re-integration)</li> </ul> <p>Motives give: see Q5</p>
8	One: the TENCompetence WP4 representative from OUNL.
9	<ul style="list-style-type: none"> <li>• Project management by a part-time project manager from one of the participating organizations.</li> <li>• Competence profile development by HR professionals from the eight partner organizations, moderated by OUNL</li> <li>• Online tools configuration (TENC PDP and LifeRay portal) by OUNL system manager</li> <li>• Tools-Helpdesk by OUNL system manager</li> <li>• Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by OUNL's Faculty of Management Sciences -Bas: what is the job title of the person who is doing this?</li> <li>• Tutoring of the blended 'mini modules' -Bas who does the tutoring? Please elaborate</li> <li>• Internship coordination by a part-time coordinator from one of the participating organizations</li> </ul>

	<ul style="list-style-type: none"><li>• Career coaching by four part-time coaches from the participating organizations.</li></ul>					
10	The four career coaches functioned as non-formal assessors at the start of the pilot.					
11	None: courses and training are expected to be ‘bought’ from external providers.					
12	Two: TENCompetence WP4 representatives from OUNL					
13	None					
14	Workplace (7%), home(70%), both (23%)					
15	Ranges between 1 to 10 hours to compile a PDP. But in some cases this may have included the use of 180-270-360 degree feedback forms that were provided as part of the demonstrator.					
16	For this demonstrator four competence profiles have been defined between the eight participating partner organizations: <ul style="list-style-type: none"><li>• Operational Manager</li><li>• Tactical Manager</li><li>• Human Resource Manager</li><li>• Senior Human Resource Manager</li></ul>					
17	#	Function:	Operational Manager	Tactical Manager	HR Advisor	Senior HR Advisor
		Competence:	Development level			
	1	Focused action	2	3	2	2
	2	Flexibility			2	2
	3	Individual-directed leadership	3	2		
	4	Initiatif			2	3
	5	Integral working			2	3
	6	Integrity			3	3
	7	Customer orientation	2		2	3
	8	Management identification	2		2	3
	9	Motivating		3		
	10	Networking skills	1	2		
	11	Environmental sensitivity		2	2	3
	12	Negotiating		2	2	2
	13	Entrepreneurship		2		
	14	Staff development	3			
	15	Organisational sensitivity	2	2	2	3
	16	Persuasion	2	2		
	17	Planning and organising	2		2	2
	18	Problem analysis			2	2
	19	Team building	2	2		
	20	Innovativeness		2		
	21	Vision		2	2	3
	22	Progress monitoring	2			
23	Quality assurance	2				
18	Participants can choose from the following development activities: <ul style="list-style-type: none"><li>• 7 mini-modules offered by Hogeschool Zuyd (56 hours each)</li><li>• 11 mini-modules offered by OUNL (25 hours each)</li><li>• Internships to be organised between the seven participating organisations</li><li>• Self-defined (e.g. on the job) development activities</li></ul>					
19	One: the OUNL-TENC author					
20	N/A					
21	18 out of 19					
22	N/A					
23	N/A					
24	N/A					

25	N/A
26	A prototypical Liferay virtual environment for the Empower pilot was developed, demonstrated and implemented. At the moment of this evaluation – start of the summer break – it was however not clear whether it will be seriously used or not.
27	A set of paper-based 180-270-360 degree feedback forms similar to the self-tests in the PDP were developed and distributed. These were used by most participants (77%).
28	The Empower pilot is ongoing, so this cannot be assessed yet.
29	None, the pilot is still ongoing.
30	Not clear, as the pilot is still ongoing.
31	Overall opinions on the PDP were as follows: <ul style="list-style-type: none"> <li>• Positive: 40% (n=6)</li> <li>• Neutral: 40% (n=6)</li> <li>• Negative: 7% (n=1)</li> <li>• No opinion: 13% (n=2)</li> </ul>
32	N/A
33	Not clear, as the pilot is still ongoing, but expected progress is on: improving a specific competence for the current job, improving a specific competence for a new job, explore the community/learning network, assessing the personal competences.
34	Participants can choose from the following development activities: <ul style="list-style-type: none"> <li>• 7 mini-modules offered by Hogeschool Zuyd (56 hours each)</li> <li>• 11 mini-modules offered by OUNL (25 hours each)</li> <li>• Internships to be organised between the seven participating organisations</li> <li>• Self-defined (e.g. on the job) development activities</li> </ul>
35	Not clear, as the pilot is still ongoing.
36	In principle, the pilot was open to all employees of the seven participating organizations. However, as only four competence profiles were covered by the pilot, the real number of potential participants is limited. Given the size of the participating organizations (total between 5.000-10.000 employees) the number of potential participants is probably in the range of 50-200 participants.
37	Medium to large organizations
38	The affiliation of the participants is not known, but they come from the following organizations: <ul style="list-style-type: none"> <li>• Mondriaan Zorg Groep (health services)</li> <li>• Centraal Bureau voor de Statistiek (National Bureau of statistics)</li> <li>• Provincie Limburg (the province of Limburg)</li> <li>• UWV (labour market re-integration)</li> <li>• Onderwijsstichting Movare (foundation managing 60 primary schools)</li> <li>• Open Universiteit (open university)</li> <li>• Gemeente Maastricht (Maastricht city council)</li> <li>• Licom NV (labour market re-integration)</li> </ul>
39	The aim of the Empower Foundation is to improve employability and mobility of the Limburg labour market through joint regional HRM analysis and planning, training and education activities, and fostering a favourable business infrastructure. The specific aim of the business demonstrator is to improve mobility of middle managers between the partner organizations.
40	Reasons given to participate in the demonstrator on a scale of 1-4: <ul style="list-style-type: none"> <li>• Develop my competences with a clear aim: 1.43 (n=14)</li> <li>• Want to share my knowledge with others: 2.434 (n=14)</li> <li>• Want to get a formal qualification: 3.5 (n=12)</li> <li>• Want to develop my competences out of sheer interest: 2.69 (n=13)</li> </ul>
41	N/A
42	<ul style="list-style-type: none"> <li>• Project management by a part-time project manager from one of the</li> </ul>

	<p>participating organizations.</p> <ul style="list-style-type: none"> <li>• Competence profile development by HR professionals from the eight partner organizations, moderated by OUNL</li> <li>• Online tools configuration (TENC PDP and LifeRay portal) by OUNL system manager</li> <li>• Tools-Helpdesk by OUNL system manager</li> <li>• Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by OUNL's Faculty of Management Sciences -Bas: what is the job title of the person who is doing this?</li> <li>• Tutoring of the blended 'mini modules' -Bas who does the tutoring? Please elaborate</li> <li>• Internship coordination by a part-time coordinator from one of the participating organizations</li> <li>• Career coaching by four part-time coaches from the participating organizations.</li> </ul>
43	Not clear, as the pilot is still ongoing.
44	<p>Overall opinions on using the PDP were as follows:</p> <ul style="list-style-type: none"> <li>• Positive: 40% (n=6)</li> <li>• Neutral: 40% (n=6)</li> <li>• Negative: 7% (n=1)</li> <li>• No opinion: 13% (n=2)</li> </ul>
45	TENCompetence positioned itself as facilitator in the competence definition process, and later on in the pilot as tool-provider for the PDP and later again as Liferay provider. The Empower pilot also was a first-time trial. As such it is difficult to distinguish between the 'Empower innovation' and the 'TENCompetence innovation'.
46	<p>The major business case for the demonstrator is to retain high-quality professionals for the region, and to balance staff needs (shortages and redundancies) between the participating organizations over time by improving mobility between them.</p> <p>During the demonstrator the costs side is as follows: The Empower Limburg partners provide funding for the small secretariat of the Foundation that initiated the pilot. In addition, all participating organizations provide staff time for the coordination group, and three organizations also provide the services (1 day/week) of career coaches. The e-tooling services are provided by OUNL/TENCompetence. The partner organizations in principle have agreed to provide opportunities for mutual secondments/internships.</p> <p>All eight organizations have staff participating in the pilot. Each participant has an individual budget from his/her employer to finance any formal courses and/or training activities.</p>
47	N/A
48	<ul style="list-style-type: none"> <li>• Project management by a part-time project manager from one of the participating organizations. 1 day/week</li> <li>• Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by OUNL's Faculty of Management Sciences. 1 week of work</li> <li>• Decomposition of existing courses by course developers into 'mini modules' to be linked to the four competence profiles by Hogeschool Zuyd. 1 week of work</li> <li>• Internship coordination by a part-time coordinator from one of the participating organizations. ?</li> <li>• Career coaching by four part-time coaches from the participating organizations. 4 weeks of work</li> </ul>
49	N/A
50	N/A
51	Link to HRM officials and tools was indicated often as a functional addition; need for e-portfolio to store assessment outcomes and PDP; inviting others for 180-270-360 degree



	feedback.
52	Yes.

### **A.10.5 Discussion**

A total of 14 respondents completed the questionnaire. The PDP was well used: all participants that continued in the pilot used it. Half of the respondents thought the PDP useful to get an impression of one's own mastery level of the competences related to the selected profile. The other half were neutral on this aspect. About 90% of respondents considered the PDP to be sufficiently clear/complete/comprehensive.

There is a large distribution in the number of hours spent on the PDP, ranging from 1 to 10 hours. This can possibly be explained by the fact that some participants also used the paper versions of the assessments for 180, 270, 360 degree feedback. Indeed 75% of the respondents asked advice from others in completing their competence (self)assessment. The addition of a (paper based, identical) assessment form thus seemed to serve a purpose.

All respondents recognize themselves to smaller or larger extent in the gap analysis through the PDP: just over half partly, and the rest fully. Almost all respondents considered the outcomes of the PDP valuable as an advice in the further planning of their development path. The development activities linked to the gaps are considered informative, but not complete.

The final score on the PDP was: positive 34%; neutral 43%; negative 7%; no opinion 14%.

In addition to the PDP TENCompetence also created an online community in Liferay, but this was never properly implemented before the end of the demonstrator period. In discussions with the pilot organizers a number of possible reasons were identified:

- The community was set up mid-way the pilot, and thus not integrated in the overall pilot design from the start, as was the case with the PDP
- Overall pilot progress was far slower than anticipated initially, and no real cooperation between participants had yet started at the end of the demonstrator period.
- In the pilot stage during the time of the evaluation, people requested face-to-face meetings rather than 'online meetings' – many participants had problems envisioning how an online community would benefit them at this stage.
- Empower 'proper' had already developed its own website, and was in the process of extending this into a community portal – the TENCompetence Liferay community portal competed directly with this initiative.

### **A.10.6 Data collection instruments**

Since the data collection instruments are in Dutch, they have not been included. However they are available with other related internal documentation under request to OUNL.

## Appendix 11: CEDEP Business Demonstrator

### A.11.1 Description of the business demonstrator

**Table A.11.1 Description of the CEDEP Business Demonstrator**

<b>CEDEP Business Demonstrator</b>	
<p>Short description:</p> <p>INSEAD together with CEDEP – the European Centre for Executive Development – has launched a business demonstrator in the context of TENCompetence. Its objective is to validate our hypothesis that the design principles underlying systems like TENCompetence Tube contribute in a measurable way to stimulating knowledge exchange, collaborative learning, and ultimately effective competence development in online communities. This is one of the fundamental premises of WP8 in the TENCompetence project which focuses mainly on the social network dimension of competence development and management systems and in particular, on how to facilitate more informal ways of knowledge exchange, linking the collective competence-related knowledge and expertise of the community of users, and including knowledge forms such as tacit knowledge, know-how and actual experiences. The CEDEP business demonstrator will in particular target 3 different user groups (i.e. top HR managers, course participants, alumni) in an inter-organizational context composed of a learning network of peers from CEDEP member companies (e.g. Aviva, Axa, Bekaert, Bristol-Myers Squibb, GDF Suez, L’Oréal, Renault, etc).</p>	
Name and description of the Associate Partner	<p>CEDEP – the European Centre for Executive Development - is an Executive Education Consortium, founded in 1970 in association with INSEAD to design and develop innovative open, company specific and limited consortium programmes for its members. The consortium is composed of 24 industry leaders, such as Aviva, Axa, Bekaert, Bristol-Myers Squibb, GDF Suez, L’Oréal, Renault, Tata Steel and Valeo. These companies co-govern the institution, as well as co-create and co-design all programmes, as is typical in inter-organizational Learning Networks. The decision to participate in the demonstrator was taken by the CEDEP’s director. Further information can be found at <a href="http://www.cedep.fr">www.cedep.fr</a></p>
User groups	<p>The user groups targeted at CEDEP are of three types:</p> <ul style="list-style-type: none"> <li>• Top HR managers of the member companies;</li> <li>• General Management Programme (GMP) participants;</li> <li>• Alumni community.</li> </ul>
Setting	<p>The user groups will receive training at CEDEP’s premises in Fontainebleau, France. They will then continue to use the tool when they return to their workplace.</p>
Roles	<p>The different roles that will be involved in the CEDEP business demonstrator include:</p> <ul style="list-style-type: none"> <li>• 1 professor (INSEAD) - run face-to-face sessions, content provision, overall project management</li> <li>• 1 senior researcher (INSEAD) - evaluation and documentation, content provision</li> <li>• 1 junior researcher (INSEAD) - help with setting up tool, user manual, evaluation, content provision</li> <li>• 1 software developer (INSEAD) - setting up and maintaining the tool</li> <li>• 1 project coordinator (CEDEP) - key contact person</li> <li>• 1 IT Manager (CEDEP) - provides all IT assistance on CEDEP side, website link, hardware, etc...</li> </ul>

	<ul style="list-style-type: none"> <li>• 1 IT Assistant (CEDEP) - helps IT manager, help with video making</li> <li>• Learners (CEDEP) - approximately 100 GMP participants</li> <li>• Company Representatives (CEDEP) - about 30</li> <li>• Alumni (CEDEP) -35 to start with but potentially 1000s</li> </ul>
Tooling	Tool: TENCompetence Tube Core Use Cases Relevant for Pilot: 3. Want to keep up-to-date 4. Want to explore & connect to learning resources.
Aim and expectation of the demonstrator	TENCompetence Tube has a high potential to provide CEDEP participants with an attractive, interactive platform for extending their learning and networking beyond the classroom experience that CEDEP offers them. Thus the CEDEP business demonstrator will focus on the following objectives: (1) Increase the proficiency level of participants' management competence and experience between modules, between programmes, and after CEDEP. (2) Nurture and strengthen the cross-cultural cross-functional professional network developed while at CEDEP, and (3) Make it fun and simple for participants to share their experiences of implementing ideas from CEDEP programmes in their company, keep up-to-date with new developments in relevant managerial topics, and keep in touch with each other. TENCompetence Tube supports the "community of practice" type of learning (i.e. voluntary knowledge exchange).
Context	The vast majority of knowledge management networks and communities fail to thrive because they do not take sufficiently into account the emotional, psychological and social needs of individuals. To be Effective Learning Networks need to: <ul style="list-style-type: none"> <li>• Take into account the social nature of the network</li> <li>• Encourage users to actively engage with other users</li> <li>• Make it easy and enjoyable for users to engage in informal knowledge exchange with others</li> <li>• Stimulate users to actively participate in sharing and building on each others' knowledge and experience</li> </ul> Only if users see real value for themselves will they contribute to and maintain knowledge in the CEDEP Learning Network. It is in this context that we will deploy TENCompetence Tube.
Business model / case shown in the demonstrator	CEDEP improves its offering to its members, course participants and alumni through an attractive, interactive platform for extending their learning and networking beyond the classroom experience, and INSEAD gets the opportunity to validate our hypothesis that the design principles underlying systems like TENCompetence Tube contribute in a measurable way to stimulating knowledge exchange, collaborative learning, and ultimately effective competence development in online communities.
Business / valorization opportunities	See above.
Relevance of TENCompetence for the demonstrator context	The TENCompetence project offers the opportunity to deploy TENCompetence Tube in a real context to i) fine-tune functionalities resulting from users' feedback ii) collect data through log files, surveys and user interviews to measure TENCompetence Tube's impact on <b>competence development in online communities</b> which is one of the fundamental promises of the TENCompetence project.

Competence profiles and competences involved	TENCompetence Tube is a particularly intuitive tool with a simple interface and functionalities so we do not anticipate particular training needs for the CEDEP user groups. Participants get hands-on experience during workshops at CEDEP run by the INSEAD Professor.
Training needs	<p>The competence profiles that will be involved in the CEDEP business demonstrator will be extremely diverse. Participant profiles may include:</p> <ul style="list-style-type: none"> <li>• HR Managers</li> <li>• Strategic Business Director</li> <li>• Senior Manager, Strategic Planning</li> <li>• Director of Research and Development</li> <li>• Product Director</li> <li>• Director, Strategic Development</li> <li>• Innovation Manager</li> </ul> <p>Competences: Purchasing, Accounting and Control, Organizational Dynamics, Collaboration, Operations Management, Marketing, Leadership, Coaching, Innovation, Negotiation, Strategic Thinking, Cultural Awareness, Self Awareness, Corporate Social Responsibility, Macroeconomics, Finance, Mergers and Acquisitions</p>
Implementation plan	<p><b>Summer 2008 - December 2008:</b> Meetings with CEDEP Management resulting in the identification of three implementation opportunities: General Management Programme (GMP) Participants – Enhancing Learning Value, Alumni – Value-Adding Online Platform and Company Representatives/HR Managers – Enhancing Collaboration</p> <p><b>January 2009</b> Meetings with General Management Programme (GMP) Director to see how to best parameterize TENCompetence Tube for GMP Participants (now called GMPTube) and to decide how and when to introduce it in the GMP Programme.</p> <p>Decision to start with deployment in the General Management Programme (GMP) Cycle 6 Period 2 (N6P2) on March 10th. n.b. The GMP has three modules P1, P2 and P3. Each module is 2 weeks long and participants return to their workplace between modules.</p> <p>Official Kick-off meeting between relevant people at INSEAD and CEDEP.</p> <p><b>January 2009 – March 2009:</b> Adaption of TENCompetence Tube to the needs of GMP Participants – The three channels of GMPTube are: Subjects &amp; Themes (about GMP Courses), Experiences (from participants about their experiences putting theory into practice in their companies) and Us (about people).</p> <p>Identification of the business competences covered by GMP courses.</p> <p>Population of GMPTube N6 with participants' profiles and videos. Initial videos made for the Subjects &amp; Themes Channel by Professors about their courses, and for the Us Channel by INSEAD researchers about themselves and their role in the project.</p> <p>Development of GMPTube Pre-Workshop Survey.</p> <p>Development of two hour GMPTube workshop for N6 Participants</p> <p><b>March 10, 2009:</b> GMPTube N6 launched in Cycle 6 Period 2 in two hour session from 8-10pm (56 participants).</p> <p><b>March 2009</b> Decision to involve GMP Cycle 5 (N5) participants currently in Period 3 (who will be leaving CEDEP soon) in GMP Alumni Project as first potential users/alumni.</p>

	<p>Population of GMPTube N5 with participants' profiles and initial videos. Development of 3 two hour GMPTube workshops for N5 Participants <b>March 30 – April 10:</b> Launch of Alumni Project. Three sessions with GMP Cycle 5 (N5) participants to try out GMPTube and decide how to best collaborate after CEDEP – GMP Alumni Project (35 participants). <b>April 10 – May 2009:</b> Evaluation of N5 Experience, More discussions with CEDEP Management about Alumni Project &amp; HR Manager Deployment. <b>June 2009</b> Population of GMPTube Cycle 7 (N7) with participants' profiles and initial videos. <b>June 22 – July 3:</b> GMPTube N7 launched in Cycle 7 for the first time in Period 1. <b>July – August 2009</b> Development of GMPTube Experience Survey &amp; Course Material for follow-up session(s). <b>Sept 14-25:</b> GMP N6 participants return for P3 – GMPTube follow-up session(s). <b>Oct 12-23:</b> GMP N7 participants return for P2 – GMPTube follow-up session(s) <b>March – Oct 2009:</b> Ongoing Evaluation of GMPTube N6. <b>July – Oct 2009:</b> Ongoing Evaluation of GMPTube N7. <b>Oct 2009:</b> Evaluation results ready for WP4 deliverable.</p>
Evaluation plan	<p>Participants complete Pre-Workshop Survey Collection of Course Facilitator Feedback by INSEAD Researcher. Collection of Course Participant Feedback by GMP Director. Analysis of log files. Interviews with course participants. Completion of additional GMPTube Experience survey by returning participants at the beginning of each module.</p>
Could you mention one or more results with which you would consider your demonstrator a success?	<p>See row 52 of Table A.11.2.</p>

### A.11.2 Implementation

We worked closely with the GMP Director to adapt the TENTube Web2.0 platform to the needs of the GMP participants. We called this adaptation GMPTube. We decided together that the main objective of this GMPTube would be to stimulate participants to continue cross-company collaborative learning while back in the office between modules P2 and P3. For example, by sharing experiences about putting the theory learned at CEDEP into practice, by providing input to one of the group project themes, or by participating in the EagleRacing collaboration simulation (Angehrn and Maxwell, 2009).



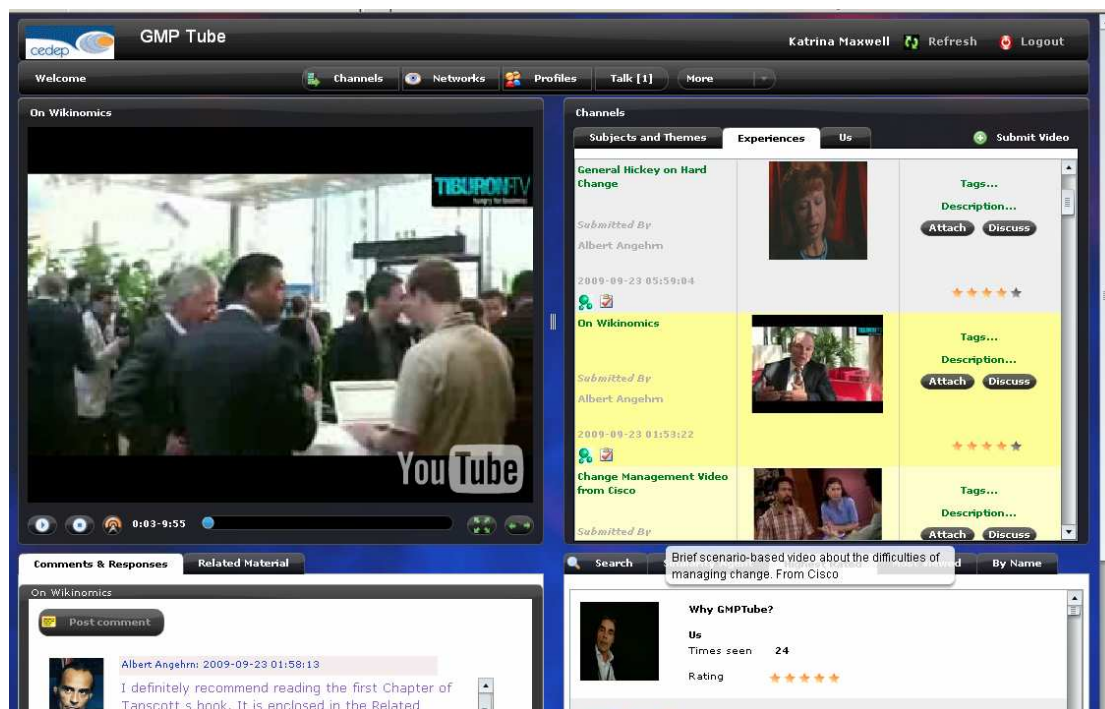


Figure A.11.1 GMPTube Channel Space

The three channels of GMPTube are: Subjects & Themes (about GMP Courses and Group Project Themes), Experiences (from participants about their experiences putting theory into practice in their companies) and Us (about people). We had professors make short videos about their courses for the Subjects & Themes Channel. In addition, we made a short place-holder video about each project theme for the Subjects & Themes Channel. INSEAD researchers and the GMP Director made videos about themselves and their role in the project for the Us Channel.



Figure A.11.2 GMPTube People Relationships

As the social aspect of GMPTube is crucial, we populated GMPTube with photos and profile information about all of the GMP community members: INSEAD researchers, CEDEP staff and GMP participants. CEDEP provided a file with the information about GMP participants which we were able to upload directly into GMPTube. Thus all participants were pre-registered in GMPTube and could log in and begin using it immediately. In addition, we also made initial “knows” relationships between members (i.e. all the INSEAD and CEDEP staff know each other, the participants all know the GMP Director, the GMP Coordinator, and the other members of their section (E1 or E2)). We also identified the business competences covered by GMP courses to modify the competences area of the profile.

In addition, we wrote a GMPTube User Manual, made a video about how to use Window Movie Maker, and prepared a 2 hour workshop to launch GMPTube. As CEDEP did not have any webcams, these were purchased and installed on ten computers for the workshop.

We introduced GMPTube during the 2 hour evening workshop as a new way of experiencing collaboration online, adding value to group projects, exchanging experiences and trying out Web 2.0 trends, and gave examples of how similar platforms are being used to stimulate innovation in organizations as well as within virtual teams and communities. We spoke about the collaboration between CEDEP and INSEAD which is focused on learning innovations in inter-organizational contexts and elaborated on the value that GMPTube could add to the General Management Programme. We then demonstrated GMPTube. The last 45 minutes of the workshop was allocated for group work and included hands-on experience with GMPTube.

For the group work, participants were split into 10 groups based on their choice of Project Theme: Predicting the future(s), Developing new markets and products, Risk Management, Exploring new industry strategies (2 groups), Managing diversity, Managing change (2 groups), Sustainability as a competitive tool, and Creative finance. Each group was asked to make a video explaining why their group is interested in the theme, which type of relevant input they would like to get from others, and why others should be motivated to do this. They were asked to spend the first 30 minutes preparing to make their video, and then go to the meeting rooms to produce their video during the last 15 minutes.

In addition, during the first 30 minutes, 7 participants were removed from their different groups to experience making individual videos. These participants went immediately to the meeting rooms, logged into GMPTube, watched the first episode of the EagleRacing collaboration simulation and made an individual video stating his/her first decision and the reasons behind it. Each was then joined by their Project Theme group during the last 15 minutes and was able to help their group make their video.

After the group work, participants returned to the amphitheatre to watch each other’s videos. At the end of the session participants were given the following tasks to accomplish during the 6 month break between modules 2 and 3:

- Log into GMPTube briefly at least once every two weeks.
- Participate in the EagleRacing simulation by submitting a decision video in the next month.
- Submit at least 2 Experience Videos during the first 2 months, one related to your group’s Theme, and one related to another group’s Theme.

### ***A.11.3 Evaluation methodology***

The GMPTube evaluation plan is summarized in Table A.11.2. Quantitative data about the participants was provided by CEDEP. A pre-workshop survey was developed and given to the



GMP participants in order to evaluate their openness to sharing experiences and their ease with technology. Observations during the first workshop were collected from the pilot implementers, and GMP participant feedback about the first workshop was provided by the GMP Director. Log files were analyzed on a regular basis to track usage. We contacted participants between Modules 2 and 3 to collect additional feedback on the reasons for their usage patterns. Finally, when participants returned for Module 3 we planned to use ThinkTank during a second workshop to collect information about the why they used, or did not use, GMPTube.

**Table A.11.2 GMPTube Evaluation Plan**

<b>Evaluation Target</b>	<b>Source</b>	<b>Type of data</b>	<b>Timing</b>
Context	CEDEP – interviews, documentation	Qualitative description of the CEDEP learning environment.	Before launch
Participants characteristics	CEDEP – Excel file	Quantitative and qualitative (age, nationality, job title, company, etc.)	Before launch
Participant information sharing and technology habits	Survey	Quantitative – 10 questions.	Before launch
Participant first impressions of GMPTube	Participant Module 2 evaluation (GMP Director)	Qualitative – participant comments about first GMPTube workshop	Just after launch.
Pilot management	Pilot implementers	Record of observations during pilot	From launch until pilot end.
Participant's use of GMPTube	Log files	Quantitative usage data	From launch until pilot end.
Quality/relevance of participant's contributions.	Videos, Comments and Discussion threads	Subjective assessment of videos and textual data by pilot implementers	From launch until pilot end.
Reasons underlying participant's GMPTube usage	Email, Interviews	Qualitative	From launch until pilot end.
Participant final impressions of GMPTube	ThinkTank (Workshop) & Participant Module 3 evaluation (GMP Director)	Qualitative – participant comments about GMPTube experience	Pilot end.

### **A.11.4 Evaluation results**

The evaluation results of the CEDEP Business Demonstrator are presented in Table A.11.3 following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.11.3 Evaluation results of the CEDEP Business Demonstrator**

<b>Q</b>	<b>Answers</b>
3	139 participants
4	2 organizations - INSEAD and CEDEP
5	The user group was the participants of the General Management Programme (GMP) at CEDEP– the European Centre for Executive Development. Participants are executives with 8 to 10 years of management experience and with international and general management responsibilities. The GMP participants had prior experience in a wide variety of business domains including change, communication, control, finance, general management, human resources, information technology, legal, logistics, marketing, production/operations, purchasing, quality, R&D, and sales. They were mainly men

	(85%). They ranged in age from 30 to 60 with an average age of 43. Twenty-two different nationalities were represented.
6	Groups of GMP executive education participants
7	CEDEP is an Executive Education Consortium, founded in 1970 in association with INSEAD to design and develop innovative open, company specific and limited consortium programmes for its members. The consortium is composed of 24 industry leaders, such as Aviva, Axa, Bekaert, Bristol-Myers Squibb, GDF Suez, L'Oréal, Renault, Tata Steel and Valeo. These companies co-govern the institution, as well as co-create and co-design all programmes, as is typical in inter-organizational Learning Networks. Further information can be found at <a href="http://www.cedep.fr">www.cedep.fr</a>
8	None used these authoring tools - unless you consider that all participants are potential authors, as they can all make their own videos and add original content.
9	1 professor (INSEAD) - run face-to-face sessions, content provision, overall project management 1 senior researcher (INSEAD) - help run face-to-face sessions, evaluation and documentation, content provision
10	1 senior researcher (INSEAD) - help run face-to-face sessions, evaluation and documentation, content provision - overlap with facilitators. 1 junior researcher (INSEAD) - help with setting up tool, user manual, evaluation, content provision - overlap with educational support staff
11	1 junior researcher (INSEAD) - help with setting up tool, user manual, evaluation, content provision 1 project coordinator (CEDEP) - key contact person
12	1 software developer (INSEAD) - setting up and maintaining the tool 1 IT Manager (CEDEP) - provides all IT assistance on CEDEP side, website link, hardware, etc... 1 IT Assistant (CEDEP) - helps IT manager, help with video making
13	N/A
14	Educational institution, office, home
15	TENTube/GMPTube was used very little outside of the classroom - less than one hour per participant.
16	Not applicable - not integrated with PCM services - no competence profiles
17	Purchasing, Accounting and Control, Organizational Dynamics, Collaboration, Operations Management, Marketing, Leadership, Coaching, Innovation, Negotiation, Strategic Thinking, Cultural Awareness, Self Awareness, Corporate Social Responsibility, Macroeconomics, Finance, Mergers and Acquisitions
18	Not applicable - not integrated with PCM services
19	Not applicable - not integrated with PCM services
20	Not applicable - not integrated with PCM services
21	Not applicable - not integrated with PCM services
22	Not applicable - not integrated with PCM services
23	Not applicable - not integrated with PCM services
24	Not applicable - not integrated with PCM services
25	In GMP N5 Period 3: used by 35 participants to make 6 group videos of their EagleRacing decision, then gave feedback about use as potential alumni platform. in GMP N6 Period 2 - Period 3: used by 7 participants to make individual videos about their EagleRacing decision, used by 56 participants to make a group video about their group project (10 videos), 2 participants submitted videos to share with classmates, 27 videos were rated by participants, 3 videos were commented, 6 profiles were viewed. In GMP N7 Period 1: after session which ended in quick demo, 3 groups made project videos, 2 participants submitted videos to share with classmates. 1 participant commented and provided a link to a book to help on a group project.
26	Not applicable - not integrated with PCM services
27	Not applicable - not integrated with PCM services

28	Participants had a Web2.0 collaboration experience
29	N/A
30	N/A
31	<p>Very diverse reactions. Most common is that this is interesting but it is not for me. Three participants expressed interest in using TENTube within their companies, rather than for inter-organizational learning.</p> <p>Two months after the workshop, about midway between Period 2 and Period 3, we sent GMP N6 participants an email to collect their feedback. In particular, we asked them (1) if they had encountered any barriers preventing them to access GMPTube, (2) the main reasons why they are not bigger users, and (3) the main reason why they had never submitted a video. In answer to these questions they mentioned a number of technical and non-technical barriers. Technical barriers included the company firewall, Acrobat Flash Player not allowed on company desktops, incompatible software and lack of a webcam. Non-Technical barriers included no time, no good reason to use yet as there was a lack of a defined group project, the group project was just starting, and no new input from classmates, lack of experience with technology, lack of interest in networking tools, and a dislike of being filmed.</p> <p>Once they were back on campus for Period 3, the executive education participants were not interested in pursuing the GMPTube experience. Improving their learning experience was not a compelling enough business objective; instead they requested that the professor speak about emerging technologies and their impact on business. Therefore, we did not hold a final ThinkTank session to collect their opinions as planned.</p>
32	See answer to question 31.
33	See answer to question 31.
34	See answer to question 31.
35	N/A
36	Small organization (10-50 permanent staff)
37	Executive Education
38	General Management Programme
39	<p>Our deployment goal was to provide GMP executive education participants with an attractive, interactive platform for extending their learning and networking beyond the classroom experience, and in particular to:</p> <p>(1) Increase the proficiency level of their management competence and experience during and after the executive development programme.</p> <p>(2) Nurture and strengthen the cross-cultural cross-functional professional network developed while on campus.</p> <p>(3) Make it fun and simple for them to share their experiences of implementing ideas from courses in their company, keep up-to-date with new developments in relevant managerial topics, and keep in touch with each other.</p>
40	<p>3) explore the community / leaning network</p> <p>4) keeping up-to-date</p>
41	N/A
42	Business school
43	<p>We all plan to continue to try to find the best way to integrate TENTube in Executive Education. This experience has shown us that many participants come from companies with no collaboration culture. We are asking them to do something new. If we want to motivate executives to use Web2.0 technologies, we need to first show them the value of collaboration, and then show them environments in which to experiment. This is why we think the way forward is to de-emphasize GMPTube and put more weight on the concept of “collaboration” and the fact that this is an area in which we are seeing lots of changes and developments facilitated by modern technology with important implications on all industries and management functions. Our new approach will be to:</p>

	<p>1. Start with a collaboration game - EagleRacing (the experience part),</p> <p>2. Address explicitly the subject of Collaboration Dynamics: Opportunities, Barriers and Levers in Organizations (business value),</p> <p>3. Address the issue of Collaboration among themselves (GMPTube, LinkedIn, etc. with structured exercises they can go through).</p> <p>This course should be positioned as a key management subject, with 1 and 2 covered in a 1-day slot of the executive programme, and 3 in follow-up evening sessions.</p>
44	<p>Although the short exposure to GMPTube did not trigger the desired learning-orientated motivation, executives from several large companies have expressed interest in applying it internally in their companies as a way to connect groups such as marketing people, creative people and IT professionals, rather than using it to exchange knowledge with classmates.</p>
45	<p>Has not really affected CEDEP yet except for the fact that they have added a new course which covers an IT subject, Collaboration and Web2.0, to their GMP course offering. They previously did not have any IT subject in their course offering. They will also be hosting a Symposium in December "Inter-Organizational Learning and Competence Development: Web 2.0 Experiences and Trends" which will help publicize our work in the TENCompetence project. So they are taking a more active role in this area.</p>
46	<p>CEDEP improves its offering to its members, course participants and alumni through an attractive, interactive platform for extending their learning and networking beyond the classroom experience, and INSEAD gets the opportunity to validate our hypothesis that the design principles underlying systems like TENCompetence Tube contribute in a measurable way to stimulating knowledge exchange, collaborative learning, and ultimately effective competence development in online communities.</p>
47	N/A
48	N/A
49	Plan to continue to use in the GMP at CEDEP.
50	N/A
51	<p>We worked closely with the GMP Director to adapt TENCompetence Tube to the needs of the GMP participants. We called this adaptation GMPTube.</p>
52	<p>This experience has allowed us to identify three main barriers to Web2.0 inter-organizational learning and collaboration in executive education: technological barriers, motivational barriers and the inter-organizational aspect itself. First of all, many executives were unable to access the platform from their companies. This is a major barrier. Organizations can't expect to profit from Web2.0 tools if they forbid access to them, and we cannot expect managers to spend time doing something which is not rewarded. The fact that our platform is video-driven posed a problem both with company firewalls, and with the need for managers to use webcams to share experiences as most participants did not have one.</p> <p>Motivation is key. If they were motivated, participants could have bought a webcam and accessed the platform from home. However, there are many more pressing demands on the participants' time once they have left the campus and are back in their companies and families, and our platform was not "fun and simple" enough. There are easier alternative ways to keep in contact and network with classmates such as email and LinkedIn that are not video-driven. In addition, the participants' very short experience of the platform in class was as a place to exchange knowledge about group projects; however, as these were disbanded, participants' saw no good reason to use it for that purpose either.</p> <p>Finally, the inter-organizational aspect is a barrier because of confidentiality issues. It is one thing to share an experience in class, and quite another thing to have some lasting proof that you said something about your company that you should not have. How much can you safely say about your experience implementing ideas from executive training in</p>

	<p>your company to people in other organizations? Even people used to face-to-face inter-organizational exchanges hesitate to extend this to an online environment.</p> <p>Interestingly, although the short exposure to GMPTube did not trigger the desired learning-orientated motivation, executives from three large companies in the biopharma, media and industrial sectors have expressed interest in applying it internally in their companies as a way to connect marketing people, creative people and IT professionals respectively, rather than using it to exchange knowledge with classmates.</p>
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### **A.11.5 Discussion of Evaluation Results**

Results from the GMPTube pre-workshop survey showed that the participants were very open to sharing experiences and giving feedback. However, they were not all avid users of IT. Many did not use social networking websites or even visit websites for pure relaxation purposes (see A.11.6). Furthermore, many did not feel at ease in front of a camera and a show of hands in the GMPTube workshop indicated that none of the participants owned a webcam.

It would appear then that this might be a difficult group on which to try out an online video-based system which incorporates Web 2.0 features to support and stimulate learning experience exchange. This was not helped by the timing of our workshop. Due to the fact that the GMP is planned a year in advance, the only time to hold our workshop was from 8 – 10pm after the participants had had a full day of lectures. The fact that most of them turned up, given that there was a televised soccer match at the same time, is quite remarkable.

During the GMPTube demonstration, some participants pointed out that their company's firewalls would probably not allow them to access GMPTube from work. Some participants also noticed that there was a guest login. They did not like this and did not want unknown people or professors accessing GMPTube. They only felt comfortable sharing with other participants. In response to this, we immediately removed the guest login. One observer noted "I question whether the GMP is the right demographic? It seems like these guys may be a generation too old... They saw all of the hurdles right away and less of the opportunities".

We observed that participants enjoyed watching the demonstration videos in class and had fun making their own videos (some of which made fun of the professors). However, many did not follow the written directions for posting their videos in GMPTube. We had to go back into the system after the course and re-classify their videos correctly. We discovered that 79% of videos were posted in the correct channel. Only 32% linked their video to the "is related to" video as requested in the written directions, and of these only 16% actually linked to the correct video. Tags were given to 68% of the videos posted. Finally, we noticed that the sound quality of the video was low in 16% of the videos.

In the days following the workshop CEDEP experienced some server problems. In addition, because of fears of theft, the webcams were removed from the CEDEP computers immediately after the workshop and kept in the IT Director's office. Participants who wanted to make videos thus faced a number of obstacles. Only one video was filmed and submitted to GMPTube while the participants were still on campus - an amusing video of participant's singing in the bar filmed with someone's phone entitled "musical collaboration". In addition, one funny (to Westerners) musical cartoon video was uploaded - "Experience Saudi Arabia".

The GMP Director collected feedback from the participants during an evaluation session at the end of Module 2. Overall, they found the presentation and concept interesting, but felt that holding the session in the evening was bad as people were tired.



The professor sent an activation email one week after the workshop, when they had returned home, reminding participants about GMPTube and inviting them to participate in the EagleRacing simulation. Although one participant immediately logged into GMPTube and had a short online chat there with the professor, no participants were interested in playing the EagleRacing simulation online once back at the office. Not one participant submitted an Experience video between P2 and P3.

Analysis of the GMPTube log files showed that once participants left CEDEP and went back in their companies, very few participants watched and rated videos, and no participants shared experiences (e.g. submitted videos, documents and links) or engaged in social exchanges such as commenting and discussions.

Two months after the workshop, about midway between P2 and P3, we sent them an email to collect their feedback. In particular, we asked them (1) if they had encountered any barriers preventing them to access GMPTube, (2) the main reasons why they are not bigger users, and (3) the main reason why they had never submitted a video. In answer to these questions they mentioned a number of technical and non-technical barriers. Technical barriers included the company firewall, Acrobat Flash Player not allowed on company desktops, incompatible software and lack of a webcam. Non-Technical barriers included no time, no good reason to use yet as there was a lack of a defined group project, the group project was just starting, and no new input from classmates, lack of experience with technology, lack of interest in networking tools, and a dislike of being filmed.

Once they were back on campus for P3, the executive education participants were not interested in pursuing the GMPTube experience. Improving their learning experience was not a compelling enough business objective; instead they requested that the professor speak about emerging technologies and their impact on business. Therefore, we did not hold a final ThinkTank session to collect their opinions as planned.

This experience has allowed us to identify three main barriers to Web2.0 inter-organizational learning and collaboration in executive education: technological barriers, motivational barriers and the inter-organizational aspect itself. First of all, many executives were unable to access the platform from their companies. This is a major barrier. Organizations can't expect to profit from Web2.0 tools if they forbid access to them, and we cannot expect managers to spend time doing something which is not rewarded. The fact that our platform is video-driven posed a problem both with company firewalls, and with the need for managers to use webcams to share experiences as most participants did not have one.

Motivation is key. If they were motivated, participants could have bought a webcam and accessed the platform from home. However, there are many more pressing demands on the participants' time once they have left the campus and are back in their companies and families, and our platform was not "fun and simple" enough. There are easier alternative ways to keep in contact and network with classmates such as email and LinkedIn that are not video-driven. In addition, the participants' very short experience of the platform in class was as a place to exchange knowledge about group projects; however, as these were disbanded, participants' saw no good reason to use it for that purpose either.

This experience has also shown us that many participants come from companies with no collaboration culture. We are asking them to do something new. If we want to motivate executives to use Web2.0 technologies, we need to first show them the value of collaboration, and then show them environments in which to experiment. This is why we think the way forward is to de-emphasize GMPTube and put more weight on the concept of "collaboration" and the fact that this is an area in which we are seeing lots of changes and developments

facilitated by modern technology with important implications on all industries and management functions. Our new approach will be to:

1. Start with a collaboration game - EagleRacing (the experience part),
2. Address explicitly the subject of Collaboration Dynamics: Opportunities, Barriers and Levers in Organizations (business value),
3. Address the issue of Collaboration among themselves (GMPTube, LinkedIn, etc. with structured exercises they can go through).

This course should be positioned as a key management subject, with 1 and 2 covered in a 1-day slot of the executive programme, and 3 in follow-up evening sessions.

Finally, the inter-organizational aspect is a barrier because of confidentiality issues. It is one thing to share an experience in class, and quite another thing to have some lasting proof that you said something about your company that you should not have. How much can you safely say about your experience implementing ideas from executive training in your company to people in other organizations? Even people used to face-to-face inter-organizational exchanges hesitate to extend this to an online environment.

Interestingly, although the short exposure to GMPTube did not trigger the desired learning-orientated motivation, executives from three large companies in the biopharma, media and industrial sectors have expressed interest in applying it internally in their companies as a way to connect marketing people, creative people and IT professionals respectively, rather than using it to exchange knowledge with classmates.

### **A.11.6 Data collection instruments**

#### **Pre-GMPTube Workshop Survey**

##### **How strongly do you agree or disagree with the following statements?**

*Each statement measured using a 5 point scale: strongly disagree, disagree, neutral, agree, strongly agree.)*

1. I need a computer in order to do my job effectively.
2. I like receiving feedback from others.
3. I visit websites for pure relaxation purposes.
4. I feel comfortable sharing my professional experiences with other GMP participants.
5. I frequently search for information on the internet.
6. Colleagues often ask me for advice.
7. I am an active user of social networking sites (e.g. LinkedIn, Facebook, ...).
8. I like giving feedback to others.
9. I feel at ease in front of a camera.
10. Sharing my knowledge with others makes me feel good.

### **References**

Angehrn, A.A and K. Maxwell (2009); EagleRacing: Addressing Corporate Collaboration Challenges Through an Online Simulation Game; Innovate, Journal of Online Education, vol. 5, Issue 6, Aug/Sept 2009. [<http://www.innovateonline.info/index.php?view=article&id=681>- last accessed July 29, 2009].



## Appendix 12: BU EPIQ-2 Business Demonstrator

### A.12.1 Description of the business demonstrator

Table A.12.1 Description of the BU EPIQ-2 Business Demonstrator

BU EPIQ-2 Business Demonstrator	
<p>Short description:</p> <p>This business demonstrator is taking place at EPIQ Electronic Assembly Business Unit EPIQ-2 (BU EPIQ-2), Botevgrad, Bulgaria, and lasts from 01 Nov. 2008 until 30 Jun. 2009. The EPIQ is a high technology organization that needs to get more out of their engineers and specialists (more than 95) and in the times of increasing global competition and economic bust it is now even more important to have motivated and talented employees to help meet the organization's goals and objectives.</p> <p>The EPIQ business demonstrator <b>aims</b> at developing a pilot implementation of the innovative TENCompetence organizational and technological infrastructure to support <b>top and middle management</b>, as well as various <b>professional communities</b> and <b>individuals</b> for improving the processes of <b>competence profiling</b>, <b>performance management and organisational learning enhancement and knowledge management</b> in an enterprise context.</p> <p>The EPIQ business demonstrator will use the Personal Competence Manager (PCM), Personal Development Plan tool (PDP) and LearnWeb 2.0. It is focused on 8 pre-defined <b>key job positions: Project Engineer; Quality Support Engineer; Test Engineer; Process Engineer; Project Leader; Customer Service Representative; Procurement Specialist and Recruitment Specialist.</b></p>	
Name and description of the Associate Partner	<p>The Technical University – Sofia Research and Development Laboratory on 'eLearning Technologies and Standards' (<a href="http://demlab.tu-sofia.bg/">http://demlab.tu-sofia.bg/</a>) supports the EPIQ business demonstrator development. It was established in 1997 under the EU funded TEMPUS SJE Project 7388/ 1994-97. The Laboratory mission is to foster projects which develop multi-party open standards-based e-learning environments and to support research into the architectures and infrastructure necessary to support e-learning systems integration. The Laboratory team seeks to develop a range of research and development agendas aimed at facilitating next generation e-learning across education and training sectors by doing interdisciplinary research and development activities in the field of ICT and Educational Technologies. Also the main purpose of the R&amp;D Laboratory is to stimulate innovation in higher engineering education and corporate training by employing advanced educational approaches and technology enhanced learning as well as implementing global standards and specifications for learning technology (SCORM) in the real university environment. Through collaborations with educational organizations, government and commercial partners, the R&amp;D Laboratory fosters the adoption of the next generation of distributed competence based eLearning and information systems.</p> <p><b>EPIQ - The Business Demonstrator Target SME</b> (<a href="http://www.epiq.com">http://www.epiq.com</a>) as well as the TENCompetence Associate Partner, has been chosen because it provides rich opportunities for testing the TENCompetence system. EPIQ emerged as a group in 1998 and went public on NASDAQ Europe, but listed since October 2003 on EURONEXT Brussels. EPIQ accounts for 10 entities in 6 countries. The Group has currently companies in Belgium, Germany, France, Czech Republic, Bulgaria and Mexico. EPIQ plants have been certified in complete conformance to the requirements of ISO-9001, ISO-9002, ISO-14001, VALEO-1000, QS-9000 and/or TS-16949 standards. EPIQ (Euronext Brussels: EPI) designs and produces electronic and electro-mechanical systems and sub-systems. EPIQ provides a wide range of integrated services from product development up to mass production. EPIQ</p>

	<p>designs and produces high-added-value electronics and electro-mechanical systems and subsystems, which are the control and operating components for end products in the consumer market. EPIQ manufactures, finishes and tests printed circuit boards and supply complete systems and subsystems. EPIQ also supplies the required engineering, research and development (R&amp;D), and logistic management, including JIT and SILS supply.</p> <p>The business demonstrator is taking place at BU EPIQ-2 Botevgrad, Bulgaria. The factory is located at Botevgrad, 60 km away from Sofia, Bulgaria, with more than 95 engineers and specialists currently employed. Quality certificates: ISO/TS 16949, ISO 14001. The company's main activities are: Manual and automated assembly of electronic components on PCB, including SMD and automated insertion processing; Board testing: testing whether all components are present and whether the board shows the desired electrical behaviour; Module assembly: attaching the circuit board to other parts, such as plastic housing; Final functional test Plastic injection moulding; Chip on Board assembly; Development and manufacturing of plastic injection moulds; Development and manufacturing of factory automation equipment.</p> <p><b>The Sofia University</b> as the TENCompetence partner is acting as an <b>infrastructure and system support provider</b>. A separate installation of the TENCompetence infrastructure has been setup on a dedicated server, because of the explicit request by EPIQ management to ensure business confidentiality. The server is situated at the Sofia University premises for the pilot duration for support reasons. The EPIQ management has requested that the servers are to be transferred at the Bulgarian unit of EPIQ Group after the pilot business demonstrator completion. They are also looking forward to adopt the infrastructure at an international level, supporting business goals in their units in Belgium, Germany, France and Czech Republic.</p>
User groups	<p>There are three user groups involved in the EPIQ business demonstrator.</p> <p>1. At the <b>company level</b>, we have an organization shifting towards knowledge society. The essential part of the innovation is the introduction of the TENCompetence paradigm. As a fundament we have the introduction and successful implementation of the competence management process. It includes helping the EPIQ stakeholders to ensure successful adoption of the new skills and competences and the development of a new company culture, based on competences. At the company level the role of the EPIQ management (top and middle) is to foster implementation and adoption of the “Competence” concept as a base for all HR-related processes and activities: Recruitment &amp; Selection, Performance Management, Training &amp; Development, Succession Planning and Capability Mapping, Assessment Center Design and Establishment. The group of EPIQ management (top and middle) consists of 10 people (6 male &amp; 4 female, age 25-40) on key positions, directly involved in decision making on competence management and business demonstrator implementation, as follows:</p> <ul style="list-style-type: none"> <li>• HR Manager: Peter Vassilev</li> <li>• IT Manager: Svetoslav Kotev</li> <li>• Business Unit E2 Manager: Nikolay Tzankov</li> <li>• Project leader: Vassil Kotov</li> <li>• Process Manager: Lubka Batsalova</li> <li>• Quality Manager: Temenuzhka Katrandzhieva</li> <li>• Test Group Manager: Petko Goranov, Boriss Borissov</li> <li>• Transport and Logistic Manager: Daniela Georgieva</li> <li>• Customer Service Manager: Maria Bonovska</li> </ul> <p>In this context we also regard EPIQ as an organization:</p> <p>As a result of the <b>intensive research, unstructured trainings, brainstorming and discussions</b> on the innovative TENCompetence solutions implementation, the group of</p>

EPIQ management supported by the TUS facilitators, have used the TENCompetence concept and:

1. have introduced competence-based HR management processes, including the introduction of new services (Recruitment & Selection, Performance Management, Training & Development, Succession Planning and Capability Mapping, Assessment Center Design and Establishment)
2. have made the decision to initiate and disseminate the competence-centered approach in the rest of the business units of EPIQ Group internationally (Belgium, Germany, France and Czech Republic)
3. have created the EPIQ Competence Catalogue, containing 16 Professional Communities (Table 1), a total of 149 Competence Profiles. A Competence Profiling Framework was adopted to serve as a template for Competence Profile development (Table 6).
4. have developed and validated the Competence Profiles for the 8 key job positions (Project Engineer; Quality Support Engineer; Test Engineer; Process Engineer; Project Leader; Customer Service Representative; Procurement Specialist and Recruitment Specialist.)
5. the Competence Profiles served as a basis for the Performance Management – definition of goals, S.M.A.R.T. objectives, employee assessment, development plan, and training design.

No	Community	Conceptualizing	Profiling	Pilot Competence Profiles
1	Administration			
2	Automation			
3	Design & Development			
4	Finance Accounting Department			
5	HR	Y	Y	Recruitment Specialist
6	Infrastructure			
7	IT	Y		
8	Logistics		Y	Customer Service Representative Procurement Specialist
9	Maintenance			
10	Management	Y		
11	Metrology			
12	Process		Y	Process Engineer
13	Production			
14	Project		Y	Project Leader Project Engineer
15	Quality		Y	Quality Engineer
16	Testing		Y	Test Engineer

**2. At the Professional Community level, we have identified 8 user groups with 18 people (7 male & 11 female, age 25-40):**

- **Project Engineer:** Hristo Yotov, Miroslav Kamenov
- **Quality Support Engineer:** Iskra Garnyovska, Diana Dimitrova
- **Test Engineer:** Petko Goranov, Majed Majed
- **Process Engineer:** Maya Vazonova, Stefka Taneva
- **Project Leader:** Vassil Kotov, Vassil Ducheve
- **Customer Service Representative:** Boryana Staneva, Petya Petkova
- **Procurement Specialist:** Denitsa Dimitrova, Stanislava Aleksieva

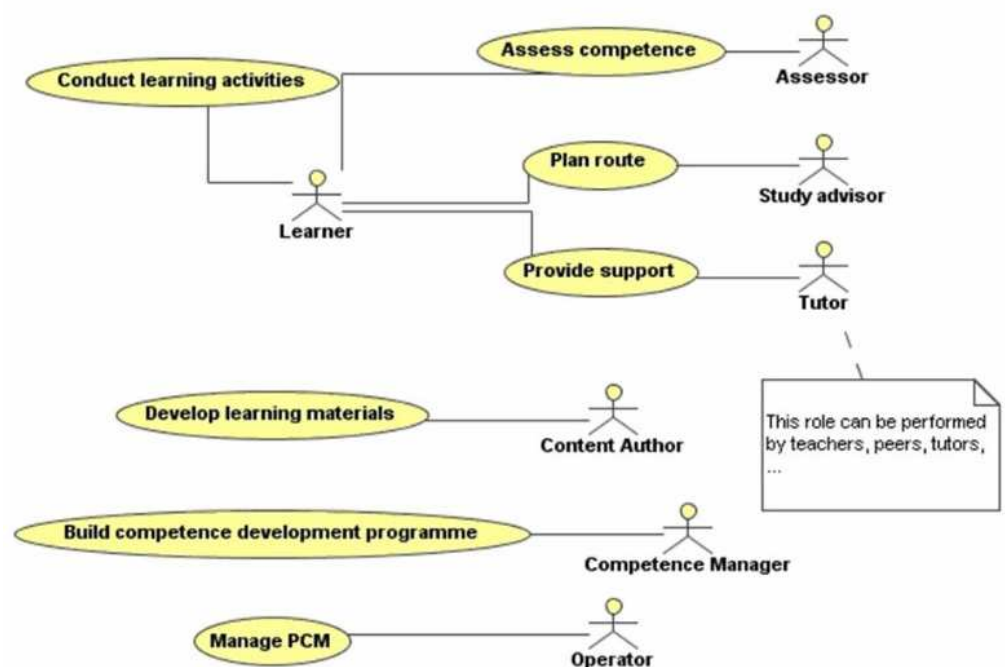
	<ul style="list-style-type: none"> <li>• <b>Recruitment Specialist:</b> Albena Vassileva, Rossita Stefanova, Tsvetomila Mitova, Georgi Bojikov</li> </ul> <p><b>They use the TENCompetence organizational and technological infrastructure to:</b></p> <ul style="list-style-type: none"> <li>• <b>understand the “competence” concept</b></li> <li>• <b>validate and adopt the competence management framework</b></li> <li>• <b>use their Competence profiles and personal development plans to improve their competences</b></li> <li>• <b>interact in a social network with team members, creating and sharing knowledge resources</b></li> </ul> <p>They have their Competence Profiles developed within the PCM and PDP. A large number of EPIQ-tailored specific and general competences, organized in <b>3 main Clusters (Competences Dealing with People, Competences Dealing with Business, Competences Dealing with Self-Management)</b>, and <b>34 sub-clusters</b> were structured using the Competence Development Framework. They are also expected to serve as a template for the creation of the other profiles after the business demonstrator is over. <b>The Competence Profiles reflect the complexity of knowledge and skills, needed to solve complex problems and tasks in a high technology company, such as EPIQ, or having to cope with difficult situations in which group collaboration will increase the chance of successful performance.</b> Moreover, the Competence Profiles serve as the foundation for the process of <b>transforming the topic-driven training to a competence-based one</b>. They help to design and plan the training in new way, containing competences and competence development plans within a community context, create simple courses containing basic learning activities and resources, create personal development plan for a specific user. Competence development plans are associated to competences and users may adopt and adapt competence development plans existing in the system.</p> <p><b>3. Individuals</b> at BU EPIQ-2: with a need to develop some general or specific competences to perform their job better, to solve some types of problems or to learn to cope with specific situations; with a need to improve their career, or a desire to change jobs; who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge; who want to develop competences due to the intrinsic motivation to learn something in a certain area.</p>
Setting	<p>The business demonstrator takes place at EPIQ-Botevgrad and at the Technical University – Sofia. A specialized Resource panel, consisting of R&amp;D Lab staff (know-how providers and methodology experts) and EPIQ staff (HR, team leaders, subject-matter experts), was created. The TENCompetence transfer of know-how and the training events / activities are organized in blended mode as follows:</p> <ul style="list-style-type: none"> <li>• Monthly face-to-face Resource panel working/training seminars organized by the team of the R&amp;D Laboratory on ‘eLearning Technologies and Standards’ with the EPIQ top and middle management at EPIQ-Botevgrad or Technical University – Sofia started at 01 Nov 2008 until 30 May 2009.</li> <li>• Weekly face-to-face Resource panel working/training seminars (every Friday) at the Technical University – Sofia, organized by the team of the R&amp;D Laboratory on ‘eLearning Technologies and Standards’ with EPIQ’s HR and IT specialists started at 01 Nov 2008 until 30 May 2009.</li> <li>• On-line competence-based training supported by the TENCompetence infrastructure.</li> <li>• Face-to-face working/training seminars at EPIQ-Botevgrad.</li> </ul> <p>All participants are presently employed, and the pilot activities are integrated in their daily work as much as possible. R&amp;D Lab staff and EPIQ HR Resource panel collaborators have devoted an entire day every Friday solely for EPIQ business demonstrator preparation and implementation. Users perform their competence development plans from their own workplace: either their own desk or a common computer room provided by the EPIQ. It is</p>

	possible for users to work from homes, but it is not expected to be the rule.
Roles	<p>The different roles involved in the pilot from its design until its completion and the estimated number of persons that play each role are the following:</p> <ul style="list-style-type: none"> <li>• Pilot designer &amp; evaluator – 3 people (E. Shoikova, V. Denishev, I. Stoyanov )</li> <li>• Requirements analyst – 3 people (E. Shoikova, V. Denishev, R. Milanov)</li> <li>• Competence manager/ Human resource manager – 6 people (E. Shoikova, V. Denishev, P. Vassilev, R. Milanov, T. Mitova, G. Bojkov)</li> <li>• Learning technology experts (learning designer, content developer) – 2+8 people (E. Shoikova, V. Denishev, R. Milanov, T. Mitova, G. Bojkov + 5 subject matter experts)</li> <li>• System administrator (also help-desk functions) – 3 persons (A. Georgiev, V. Denishev, S. Kotev)</li> <li>• Learners – 16-20 people</li> <li>• Trainer / Subject-matter expert – 2+8 people (E. Shoikova, V. Denishev, R. Milanov, T. Mitova, G. Bojkov + 5 subject matter experts)</li> <li>• Performance manager/Assessor – 4+8 people (P. Vassilev, R. Milanov, T. Mitova, G. Bojkov + 8 team leaders)</li> </ul> <p>List of identified roles and people (including overlapping roles):</p> <ul style="list-style-type: none"> <li>• Pilot designer &amp; evaluator + Requirements analyst + Competence manager + Learning technology experts + Trainer / Subject-matter expert – 2 people (E. Shoikova, V. Denishev)</li> <li>• Pilot designer &amp; evaluator + Trainer / Subject-matter expert – 1 person (I. Stoyanov)</li> <li>• Requirements analyst - 1 person (R. Milanov)</li> <li>• Competence manager/ Human resource manager + Learning technology experts (learning designer, content developer) + Performance manager/Assessor - 4 people (P. Vassilev, R. Milanov, T. Mitova, G. Bojkov)</li> <li>• System administrator (also help-desk functions) – 2 people (A. Georgiev, S. Kotev)</li> <li>• Learners – 16 people</li> <li>• Trainer / Subject-matter expert + Performance manager/Assessor - 9 people (IT Manager: Svetoslav Kotev, Bussines Unit E2 Manager: Nikolay Tzankov, Project leader: Vassil Kotov, Process Manager: Lubka Batsalova, Quality Manager: Temenuzhka Katrandzhieva, Test Group Manager: Petko Goranov, Boriss Borissov, Transport and Logistic Manager: Daniela Georgieva, Customer Service Manager: Maria Bonovska)</li> </ul>
Tooling	<p>The seven TENCompetence core use cases are relevant to the EPIQ business demonstrator. The mapping between the 7 core use cases and the EPIQ newly established or improved HRM related processes (mid- or long –term plan) is presented in the following table. All scenarios for implementing the 7 core use cases rely on the main tools of the Personal Competence Management System 2.0 (Personal Competence Manager (PCM) – expert use only, Personal Development Planner (PDP) and LearnWeb 2.0).</p>



Nº	Goal	Achieved by combining the core use cases
1	I want to keep up to date within my existing function or job	<i>Assess competences</i> , to assess the Learner's current competences. Based on the results, the Learner <i>Plans a route</i> . <i>Conducting learning activities</i> then takes the Learner along the route. When questions or problems arise, <i>support is provided</i> by Tutors.
2	I want to study for a new function or job or improve my current job level	<i>Assess competences</i> , to assess the Learner's current competences. Based on the results, the Learner <i>Plans a route</i> . <i>Conducting learning activities</i> then takes the Learner along the route. When questions or problems arise, <i>support is provided</i> by Tutors.
3	I want to reflect on my current competences to determine which functions and jobs are within my reach or to help me define new learning goals	<i>Assess competences</i> , to assess the Learner's current competences. Matching the results with <i>built competence development programmes</i> shows how close the match of the Learner's competence profile/status is with certain functions and jobs
4	I want to improve my proficiency level of a specific competence	<i>Assess competences</i> , to assess the Learner's current competences. Based on the results, the Learner <i>Plans a route</i> . <i>Conducting learning activities</i> then takes the Learner along the route. When questions or problems arise, <i>support is provided</i> by Tutors.
5	Want some support on a non-trivial learning problem	Tutors can <i>provide support</i> to a Learner, to guide the learner to optimize results or solve a learning problem.
6	Want to explore the possibilities in a new field (learning network) to help define new learning goals	Learners can browse across developed learning materials, built competence development programmes and planned routes of other Learners to explore the potential of the learning network in relation to their learning aims.

The seven Personal Competence Manager use cases



Core use cases and New/Improved Business Processes

№	Core use case	Description	New/ Improved Business Processes
1	<b>Assessing competences</b>	<p>Assess competence is the process whereby the learners' level of a competence is measured by an assessor, by assessing:</p> <ul style="list-style-type: none"> <li>- the results of learning activities</li> <li>- the gap between the previously obtained and recognized competences and the desired competences</li> <li>- the competences to obtain, which are part of a competence development programme</li> </ul> <p>Methods for assessment of competences can vary from several forms of performance assessment such as, peer assessment, self-assessment, portfolio assessment, 360 degree assessment etc., combined with the more traditional forms of assessments such as multiple choice questions, fill in the blanks, and multiple response questions.</p> <p>All preparations, evaluation and reporting of results are part of the assessing competence use case.</p>	<p>Recruitment &amp; Selection Performance Management Training &amp; Development Succession Planning and Capability Mapping Assessment Centre Design and Establishment</p>
2	<b>Plan a route</b>	<p>Plan route presents the learner with the best possible sequence of learning activities in order to obtain a certain learning objective. The learner receives a roadmap by which he or she can navigate efficiently through the various learning activities. A study advisor can help the learner define the sequence of learning activities.</p>	<p>Performance Management Training &amp; Development Assessment Centre Design and Establishment</p>
3	<b>Build Competence Development Program</b>	<p>Build Competence Development programme presents the learner with the set of learning activities which he or she has to perform to attain the competences for a certain function/job /diploma. The competence development programme presents the learner with the whole list of learning activities to conduct in order to become e.g. a project manager, a master in psychology etc. A competence manager helps the learner to define the competences.</p>	<p>Performance Management Training &amp; Development</p>
4	<b>Provide Support</b>	<p>The provision of support helps the learners to conduct the learning activities. This support can take many forms, such as coach, tutor, helpdesk, peer assistant, FAQ's, support agents etc.</p>	<p>Training &amp; Development</p>
5	<b>Conducting Learning Activities</b>	<p>Conducting learning activities means the actual undertaking of courses, lessons, e- Learning, traineeships (by a learner) or any other activity to achieve a certain learning objective (competence, skills, knowledge, and attitudes). Usually a learner conducts several learning activities to obtain a learning objective.</p>	<p>Training &amp; Development Assessment Centre Design and Establishment</p>



	<b>6</b>	<b>Develop Learning materials</b>	Learning materials are all the materials needed by a learner to learn. These materials include books, articles, HTML pages and computer programmes among others. The development of learning materials is supported as is the need to find appropriate learning materials in knowledge management (learning objects) repositories. The learning materials are usually developed by content authors.	Training & Development Assessment Centre Design and Establishment
	<b>7</b>	<b>Manage Personal Competence Management System 2.0</b>	The Personal Competence Manager (PCM) is the software package of the integrated TENCompetence system. All development work within TENCompetence adds to this, making it TENCompetence's primary software package. 'Manage PCM' entails the management (installing, running and monitoring servers) and maintenance (installing software patches and updates) of the PCM software in order to provide a durable facility to end users. This work is usually done by an operator.	Recruitment & Selection Performance Management Training & Development Assessment Centre Design and Establishment

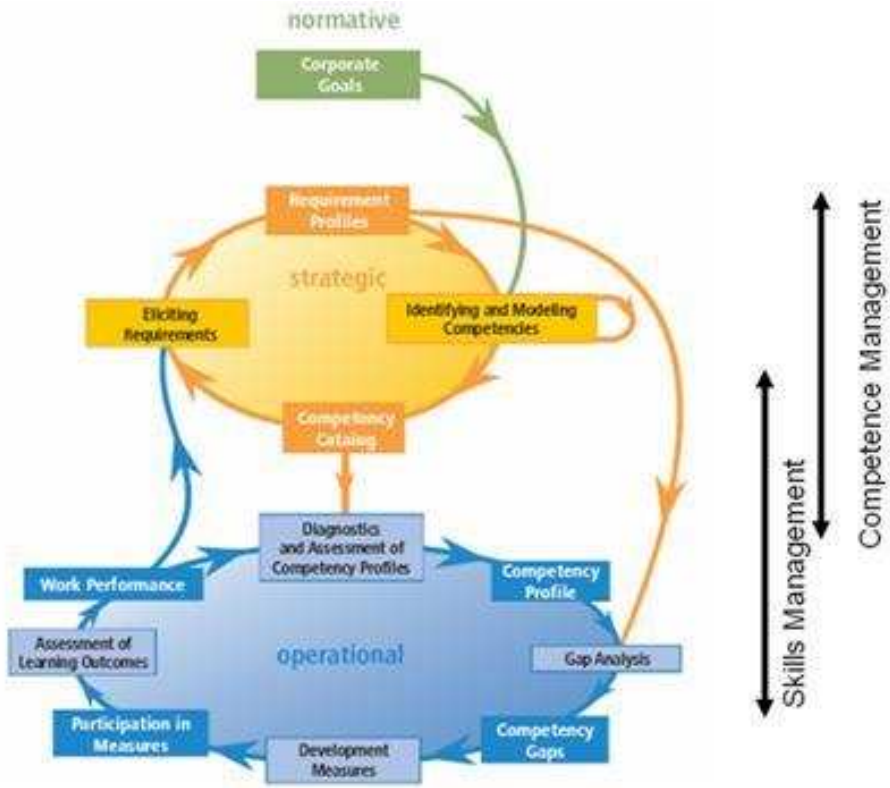
### Services and benefits

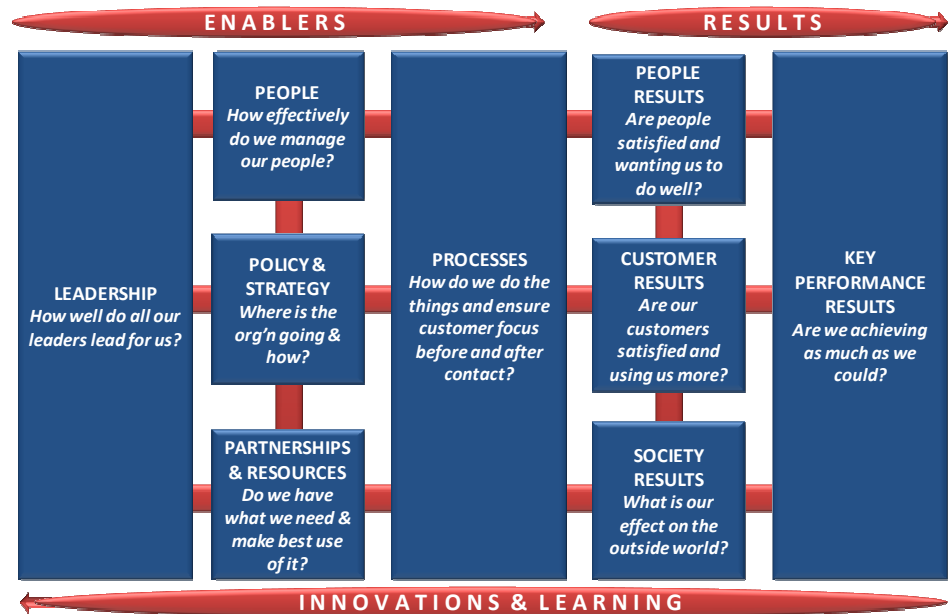
<b>1</b>	<b>Recruitment &amp; Selection Services</b>	<b>Recruitment &amp; Selection Benefits</b>
	<ul style="list-style-type: none"> <li>Getting the role specification right and designing a recruitment process that attracts the right candidates</li> <li>Designing and supporting assessment &amp; selection processes that identify, quantify and differentiate the capabilities of good candidates</li> <li>Design and delivery of 'Behavioural' interview techniques, which independent research indicates are significantly more effective at predicting success in role than conventional interviewing</li> <li>Consolidating and analyzing assessor analysis to ensure full and detailed feedback against the needs of the role, of critical importance particularly for internal promotion selection processes</li> <li>Training internal assessors in the process skills necessary for effective, high-quality and non-discriminatory selection</li> </ul>	<ul style="list-style-type: none"> <li>Reduce staff turnover</li> <li>Reduce recruitment costs</li> <li>Reduce training costs</li> <li>Improve new staff productivity</li> <li>Improve long-term performance</li> <li>Improve the return on training &amp; development investment</li> </ul>

	<b>2</b>	<b>Performance Management Services</b>	<b>Performance Management Benefits</b>
		<ul style="list-style-type: none"> <li>Integrating competencies into existing or new performance management processes</li> <li>Designing or integrating with 360° or other multi-rater processes</li> <li>Validating, calibrating and assuring the quality of performance management process output</li> <li>Creating effective links between capability, performance and compensation</li> </ul>	<ul style="list-style-type: none"> <li>Improve the accuracy, consistency and reliability of performance data, within cultures and across multiple cultures for international organization</li> <li>Improve the motivation of employee</li> <li>Capture and integrate behavioural measures with quantitative measures of performance</li> <li>Improve the performance and capability development output from the company process</li> <li>Accurately target rewards and incentives effectively across the international business environment</li> </ul>
	<b>3</b>	<b>Training &amp; Development Services</b>	<b>Training &amp; Development Benefits</b>
		<ul style="list-style-type: none"> <li>Identifying training &amp; development needs accurately and methodically across key behavioural and technical competencies</li> <li>Enabling accurate 'gap analysis' between the capability of the individual and the requirements of current or future roles</li> <li>Facilitating reality-based assessment and valuable feedback through 'critical incident' focus</li> <li>Identifying and quantifying T&amp;D needs across teams, functions, locations and units, translating into comprehensive T&amp;D plans</li> <li>Supporting technology enhanced lifelong personal competence development</li> </ul>	<ul style="list-style-type: none"> <li>Radically improve the accuracy of T&amp;D needs analysis</li> <li>Deliver comprehensive T&amp;D plans for individuals, teams, functions, units</li> <li>Create T&amp;D processes that identify and deliver the most effective interventions, sensitive to the cultural norms of international staff</li> <li>Radically improve the return on T&amp;D investment and build the 'human capital' of the organization</li> </ul>
	<b>4</b>	<b>Succession Planning and Capability Mapping Services</b>	<b>Succession Planning and Capability Mapping Benefits</b>
		<ul style="list-style-type: none"> <li>Building succession-planning processes that focus on and deliver the competencies the organization needs for its current and future roles, not to match job-descriptions and boxes on organization charts that will be out-of-date by the time the position is available</li> <li>Enabling the identification and accessibility of competency anywhere in the organization, when it is needed</li> <li>Enabling organizations to build accurate 'maps' of capability across teams, functions, business units, locations, countries and regions</li> </ul>	<ul style="list-style-type: none"> <li>Identify the capabilities the organization needs for its future, not its past</li> <li>Quantify and analyze capability gaps at organization level, against the strategic requirements of the business, internationally</li> <li>Identify capability surpluses that can be utilized in other parts of the organization</li> </ul>

	5 Assessment Centre Design and Establishment Services	Assessment Centre Design and Establishment Benefits
	<ul style="list-style-type: none"> <li>• Designing and building assessment centre processes that can be delivered on flexible platforms as events, in modular form, in 'virtual' form, in self-assessment formats, in tight or extended time-scales</li> <li>• Utilizing behavioural-event assessment focused against competence-based role profiles, in selection and / or development scenarios</li> <li>• Ensuring accurate and appropriate use of psychometrics, capability measures and other methodologies</li> <li>• Ensuring effective assessor training and consistent evaluation of capability</li> <li>• Delivering design that ensures applicability and fair assessment across multiple cultures</li> </ul>	<ul style="list-style-type: none"> <li>• Significantly improve the credibility of assessment feedback</li> <li>• Develop Assessment processes that are genuinely effective across multiple cultures - not just in the home-country of the organization - so that the international strategic needs of the business can be met</li> <li>• Enable flexible delivery that engages individuals and delivers the information and capability the organization needs</li> </ul>
	<p>In the context of the lifelong competence-based learning, the TENCompetence tooling applied in the demonstrator is gradually attracting the attention of the EPIQ management, since it provides important benefits for both individuals and organizations. At the organizations' level, it supports new pedagogical &amp; organizational models for lifelong competence development, baring the potential for designing competence development programmes that targets to performance improvement and enhances human resource potential. Competence information, in the form of a competence profile, helps EPIQ to bridge the gap between where the organization is now and where it wants to be in the future. This occurs in two ways. First, it provides EPIQ management and staff with a common understanding of the set of competencies and behaviors that are important to the organization. Second, a competence profile serves as a guide for management in making human resources decisions about performance management, jobs and people in jobs, since it is based on the people characteristics that support the mission, vision, and goals of the organization. At the individual's level, a competence-based learning approach helps EPIQ in identifying and targeting competences that need to be developed in order for an individual to reach the competences defined by a career and the organization. It supports individuals to search the most suitable formal and informal learning activities, stimulating pro-active sharing of knowledge resources. Nowadays, the individual usually has the prime responsibility for development of their own competence portfolio to ensure currency and applicability. There is a changed psychological contract between a professional and the employing organisation such that there is now a 'joint responsibility' for career management rather than a 'job for life'. The applied TENCompetence organizational and technological infrastructure promotes decentralized, self-organised competence-driven learning and provides various forms of user support services.</p>	
Aim and expectation of the demonstrator	<p><b>The EPIQ business demonstrator aims</b> at developing a pilot implementation of the innovative TENCompetence organizational and technological infrastructure to support top and middle management, as well as various professional communities and individuals for <b>improving the processes of competence profiling, performance management and enhancing organisational learning and knowledge management in an enterprise context</b>. The value of the personal competence management system, applied in the demonstrator that consists of the <b>Personal Competence Manager (PCM), Personal Development Plan tool (PDP) and LearnWeb 2.0</b>, is estimated as an environment that <b>stimulates self-directed learning and self-organization, production of knowledge</b>, instead of consumption, learning activities, instead of learning objects, and knowledge sharing between participants in the various EPIQ communities of practice. The examination of the business benefits is articulated around the 9 criteria of the</p>	

	<p>Excellence Model developed by the European Foundation for Quality Management. The Model is based on the premise that: Excellent results with respect to Performance, Customers, People and Society are achieved through Leadership driving Policy and Strategy, that is delivered through People, Partnerships and Resources, and Processes. The 'Enabler' criteria: Leadership, People, Policy &amp; Strategy, Partnerships &amp; Resources and Processes cover what an organization does. The 'Results' criteria: People Results, Customer Results, Society Results and Key Performance Results cover what an organization achieves. 'Results' are caused by 'Enablers' and 'Enablers' are improved using feedback (Innovations &amp; Learning) from 'Results'.</p> <p>The EPIQ's business demonstrator is focused on <b>8 pre-defined key job positions</b>: Project Engineer; Quality Support Engineer; Test Engineer; Process Engineer; Project Leader; Customer Service Representative; Procurement Specialist and Recruitment Specialist.</p> <p><b>The expected business benefits</b> for BU EPIQ-2 when implementing the TENCompetence concept and infrastructure can be seen as follows:</p> <p>At a company level, we have an organization shifting from content-driven towards competence-based training. The essential part of the innovation introducing by of this business demonstrator is successful implementation of the competence management process and the development of a new company culture, based on competences. The outcomes of the work at this levels include the creation of the EPIQ Competence Catalogue, containing 16 Professional Communities, a total of 149 Competence Profiles and a large number of respective competences, organized in 3 main Clusters (Competences Dealing with People, Competences Dealing with Business, Competences Dealing with Self-Management), and 34 sub-clusters.</p> <p>At the Professional Community level, and for the purposes of this business demonstrator, 8 of the key EPIQ job profiles have their Competence Profiles developed - Project Engineer, Quality Support Engineer, Test Engineer, Process Engineer, Project Leader, Customer Service Representative, Procurement Specialist and Recruitment Specialist. They are also expected to serve as a template for the creation of the other profiles after the business demonstrator is over as well as a basis for the Performance Management improvement – definition of goals, S.M.A.R.T. objectives, employee assessment, development plan, and training design.</p> <p>For individuals involved in the EPIQ target groups with a need to develop some general or specific competences to perform their job better, to solve some types of problems or to learn to cope with specific situations; with a need to improve their career, or a desire to change jobs; who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge; who want to develop competences due to the intrinsic motivation to learn something in a certain area.</p> <p>The EPIQ business demonstrator employs various approaches and learning models:</p> <ul style="list-style-type: none"> <li>· blended learning (technology enhanced, web-based and face-to-face training)</li> <li>· instructed training</li> <li>· self-organized learning with predefined goals and pre-selected learning activities</li> <li>· community of practice (voluntary knowledge exchange)</li> <li>· knowledge management (mandatory knowledge exchange)</li> </ul>
Context	<p>BU EPIQ-2 as a high technology organization needs to get more out of their employees and in this time of increasing global competition it is now even more important to have motivated and talented employees to help meet the organization's goals and objectives.</p> <p><b>The broad context:</b> Applying the TENCompetence concept EPIQ promotes a vision and strategy for competence development. Competence management methodology, adopted for the purposes of the business demonstrator, offers a strategy and approach to work structurally on the development of employee competencies in order to increase the performance of the organization. It helps the company to direct the changes in line with the organization's vision, mission and strategic objectives - whether the organization wants to</p>

	<p>exclusively enhance its performance, or transform its way of doing business.</p> <p>EPIQ's layers of competence management</p>  <p>As prescribed by Ian Mishka, during a Q2 2008 Quality management systems audit (ISO/TS16949 - Particular requirements for the application of ISO 9001:2000 for automotive production and relevant service part organizations), a set of detailed Competence Profiles is in the process of creation.</p> <p><b>Specifically at EPIQ</b>, the process of competence management goes through the following steps:</p> <ul style="list-style-type: none"> <li>Step 1: Develop competence management strategy.</li> <li>Step 2: Define competence profiles.</li> <li>Step 3: Validate competence profiles</li> <li>Step 4: Establish and maintain new technology infrastructure.</li> <li>Step 5: Build competence profile models. Develop competence frameworks for different professional communities.</li> <li>Step 6: Support individuals in lifelong competence development, using new technologies.</li> </ul>
<p>Business model / case shown in the demonstrator</p>	<p>For the purposes of the EPIQ pilot, the business model used is the one developed by the European Foundation for Quality Management (EFQM) and referred to as the Excellence Model. Specifically, the EFQM Excellence Model is used as a practical tool for self-assessment; as a guide to identify areas for improvement; as the basis for a common vocabulary and a way of thinking.</p> <p>The EFQM Excellence Model</p>



The EPIQ business benefits are evaluated across the 9 criteria of the EQFM Excellence Model.

#### Criteria of the EQFM Excellence Model

##### ENABLERS - how we do things

**LEADERSHIP** - How leaders develop and facilitate the achievement of the mission and vision, develop values required for long term success and implement these via appropriate actions and behaviors, and are personally involved in ensuring that the organization's management system is developed and implemented.

**POLICY & STRATEGY** - How the organization implements its mission and vision via a clear stakeholder focused strategy, supported by relevant policies, plans, objectives, targets and processes.

**PEOPLE** - How the organization manages, develops and releases the knowledge and full potential of its people at an individual, team-based and organization-wide level, and plans these activities in order to support its policy and strategy and the effective operation of its processes.

**PARTNERSHIPS & RESOURCES** - How the organization plans and manages its external partnerships and internal resources in order to support its policy and strategy and the effective operation of its processes.

**PROCESSES** - How the organization designs, manages and improves its processes in order to support its policy and strategy and fully satisfy, and generate increasing value for, its customers and other stakeholders.

##### RESULTS - what we target, measure and achieve

**CUSTOMER RESULTS** - What the organization is achieving in relation to its external customers.

**PEOPLE RESULTS** - What the organization is achieving in relation to its people

**SOCIETY RESULTS** - What the organization is achieving in relation to local and international society as appropriate.

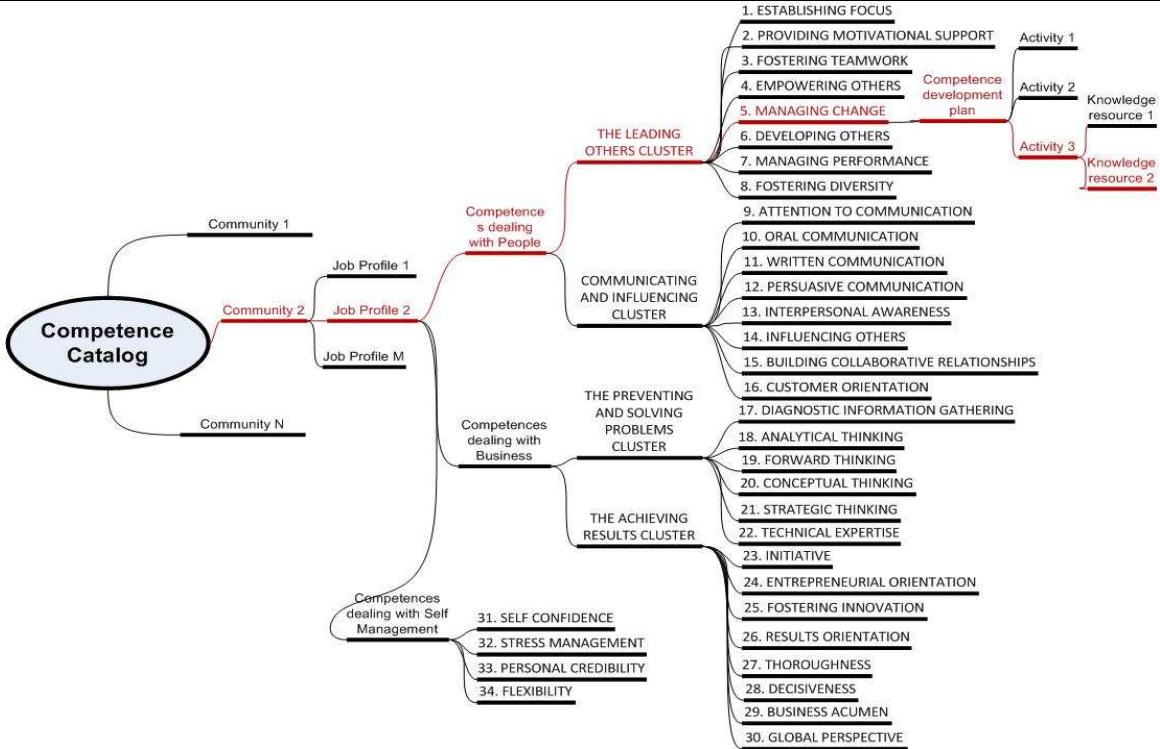
**KEY PERFORMANCE RESULTS** - What the organization is achieving in relation to its planned performance.

The main benefits for EPIQ when implementing the TENCompetence concept and infrastructure can be summarized as follows:

##### Corporate Benefits

- Alignment of the competence development policy with the EPIQ strategic goals and



	<p>objectives</p> <ul style="list-style-type: none"> <li>• Focus on the main processes within the organization</li> <li>• Provision of support to organizational transformation and (culture) change</li> <li>• Create a culture of lifelong learning and continuous competence development</li> <li>• Direct alignment with the EPIQ training and development plan</li> <li>• Saves considerable costs in terms of employee downtime, travel/accommodation costs</li> <li>• Accommodates rapidly changing competence development programme and learning resources</li> <li>• Facilitates competence assessment and performance management.</li> </ul> <p><b>User Benefits</b></p> <ul style="list-style-type: none"> <li>• Facilitates lifelong competence development</li> <li>• Increase performance level of the employees</li> <li>• Individuals involved in professional communities learn in an interactive environment with the benefits of being able to create and share professional knowledge</li> <li>• Learner, as a part of a professional community, can work through the learning path at their own rate (self paced) at any given time in any location. Ideal for 'just-in-time' on-job training and knowledge transfer.</li> <li>• Global access to standards that impact best practices and processes</li> <li>• Learners can return immediately to their working environment, putting new skills to work on the same day, increasing the benefit of the training.</li> </ul> <p>The EPIQ Competence Catalogue &amp; PCM &amp; PDP &amp; LearnWeb 2.0 integration is presented in the following figure:</p>
	
Business / valorization opportunities	<p>New HR <b>Management processes establishment</b>. Competence profiles are used as a base for employee assessment and performance management.</p> <p>The TENCompetence implementation at EPIQ fosters the <b>knowledge conversion processes</b>.</p>
Relevance of TENCompetence for the	<p>The EPIQ domain is challenging in a number of ways, which provide rich opportunities for validating the TENCompetence concept and infrastructure in the Cycle 3 pilot “business</p>



demonstrator context	<p>demonstrators”:</p> <ol style="list-style-type: none"> <li><b>1. EPIQ has real and urgent need for competence management improvement.</b></li> <li><b>2. A business demonstrator at EPIQ involves the definition, development and management of an extensive and complex set of competences.</b></li> <li><b>3. The competences required in the electronic industry are very complex and rapidly changing.</b></li> <li><b>4. EPIQ professionals require highly flexible training opportunities.</b></li> <li><b>5. There is a constant flow of employees that need to be trained.</b></li> </ol> <p>The company faces the following problems:</p> <ol style="list-style-type: none"> <li>1. There is a lack of competence profiles. Job descriptions are available, but not a detailed and well structured competence catalog.</li> <li>2. There is a lack of a competence development program.</li> <li>3. The traditional topic-based onsite corporate training process is time-consuming and a better effectiveness is desired.</li> <li>4. There is no centralized knowledge management system or a digital repository of learning resources available. Very detailed materials, instructions and training plans are available though.</li> </ol> <p>The solutions include:</p> <ol style="list-style-type: none"> <li>1. Creating a catalog with clearly defined and measurable competence profiles within a community context, which allow mapping to competence development plans and learning activities.</li> <li>2. Making the switch from traditional content-oriented learning to competency-based self-directed learning, knowledge capturing and sharing and learning resource reuse</li> <li>3. Introducing technology-enhanced learning environment and services:             <ol style="list-style-type: none"> <li>a. establishing the TENCompetence open infrastructure (hardware and software)</li> <li>b. employing competency-based self-directed learning, knowledge capturing and sharing</li> </ol> </li> <li>4. Creating simple courses (containing basic learning activities and resources) within competence development plans.</li> <li>5. Creating personal development plans for a specific user that are associated to competences created with the PCM. Users may adopt and adapt competence development plans existing in the system.</li> </ol> <p>To determine the business benefits of TENCompetence concept we focus more specifically on the added value for EPIQ of the main goals rather than focusing on the purely financial aspect. Next table gives an overview of each individual learning goal combined with one or more use cases with an extended explanation.</p>
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	No.	Goal	Achieved by combining
	1	I want to keep up to date within my existing function or job	Assess competences, to assess the Learner's current competences. Based on the results, the Learner Plans a route. Conducting learning activities then takes the Learner along the route. When questions or problems arise, support is provided by Tutors.
	2	I want to study for a new function or job or improve my current job level	Assess competences, to assess the Learner's current competences. Based on the results, the Learner Plans a route. Conducting learning activities then takes the Learner along the route. When questions or problems arise, support is provided by Tutors.
	3	I want to reflect on my current competences to determine which functions and jobs are within my reach or to help me define new learning goals	Assess competences, to assess the Learner's current competences. Matching the results with built competence development programmes shows how close the match of the Learner's competence profile/status is with certain functions and jobs.
	4	I want to improve my proficiency level of a specific competence	Assess competences, to assess the Learner's current competences. Based on the results, the Learner Plans a route. Conducting learning activities then takes the Learner along the route. When questions or problems arise, support is provided by Tutors.
	5	Want some support on a non-trivial learning problem	Tutors can provide support to a Learner, to guide the learner to optimize results or solve a learning problem.
	6	Want to explore the possibilities in a new field (learning network) to help define new learning goals	Learners can browse across developed learning materials, built competence development programmes and planned routes of other Learners to explore the potential of the learning network in relation to their learning aims.
Competence profiles and competences involved	<p>Competence profiles and competences involved</p> <p>The EPIQ's business demonstrator is focused on 8 pre-defined <b>key job positions</b>:</p> <ul style="list-style-type: none"> <li>· Project Engineer</li> <li>· Quality Support Engineer</li> <li>· Test Engineer</li> <li>· Process Engineer</li> <li>· Project Leader</li> <li>· Customer Service Representative</li> <li>· Procurement Specialist</li> <li>· Recruitment Specialist</li> </ul> <p>All Competence Profiles were created following the format of the Competence Profiling Framework. <b>Each profile consists of more than 300 single competences – generic and job-specific.</b> For the purposes of the pilot business demonstrator, a set of Personal Development Plans (consisting of learning activities and integrated knowledge resources) mapped to some of the competences were designed. The first group of competences and training activities are tightly connected to the EPIQ implementation of the TENCompetence infrastructure and include the following usage profiles:</p> <ul style="list-style-type: none"> <li>· Studying EPIQ job-profiles and training</li> <li>· Creating a Competence Profiling Framework (described in 'Business model /case shown in the demonstrator', Table 3)</li> <li>· Structuring the EPIQ competence catalogue</li> <li>· Developing 8 pilot EPIQ competence profiles</li> <li>· Competence Assessment</li> <li>· Personal Development Plan</li> <li>· Create Course</li> </ul>		

	<ul style="list-style-type: none"> <li>· Follow Course</li> <li>· Social Help</li> <li>· Knowledge Management</li> <li>· Design Evaluation</li> <li>· Information gathering and analysis</li> <li>· Competence development infrastructure</li> <li>· Performance management</li> </ul>
Training needs	<p><b>Training needs for the demonstrator implementation:</b></p> <ul style="list-style-type: none"> <li>• Development of multimedia presentations about the TENCompetence organizational and technological infrastructure</li> <li>• Bi-lingual pilot implementation is necessary – company consists of English-speaking managers, some bi-lingual staff and some Bulgarian-only speaking employees. All products manuals for PCM, PDP, Learnweb2.0, in both English and Bulgarian languages are available. Localized versions of the software will be preferable. Training of trainers and mentors will be needed, as well as constant help support service.</li> </ul> <p><b>Training needs for the competence development in Electronics</b> (subject-matter specific)</p> <ul style="list-style-type: none"> <li>• Some training programs, knowledge resources and tests are currently under development</li> </ul> <p>Some training programs, knowledge resources and tests already exist and are integrated in the Personal management infrastructure.</p>
Implementation plan	<p><b>1. Requirements analysis and definition Nov. 2008</b></p> <ul style="list-style-type: none"> <li>• Overview of existing job profiles</li> <li>• Overview of existing training programs and learning resources</li> <li>• Overview of existing ICT infrastructure</li> <li>• Key-job profiles identification</li> </ul> <p><b>2. Identification of the staff involved for each role Nov. 2008</b> (Business &amp; pilot project manager, Human resource manager (competence provider, competence assessment provider) / Competence manager, Requirements analyst, Pilot designer and evaluator, Infrastructure / System manager (also help-desk functions), Learning technology experts (learning designer, content developer), Learner, Trainer / Tutor / Teacher / Coordinator / Mentor / Subject-matter expert, Assessor)</p> <p><b>3. Infrastructure establishment Nov. 2008-Feb. 2009</b>, based on:</p> <ul style="list-style-type: none"> <li>• Personal Competence Manager – Server</li> <li>• Personal Competence Manager – Rich client</li> <li>• Personal development plan – Rich client</li> </ul> <p><b>4. Establishment of a specialized Resource panel, Nov. 2008</b>, consisting of R&amp;D Lab staff (know-how providers and methodology experts) and EPIQ staff (HR, team leaders, subject-matter experts)</p> <p><b>5. Planning and organization of regular workshops and training events, Nov. 2008-May 2009</b></p> <ul style="list-style-type: none"> <li>• Monthly face-to-face Resource panel working/training seminars organized by the team of the R&amp;D Laboratory on ‘eLearning Technologies and Standards’ with the EPIQ top and middle management at EPIQ-Botevgrad or Technical University – Sofia</li> <li>• Weekly face-to-face Resource panel working/training seminars (every Friday) at the Technical University – Sofia, organized by the team of the R&amp;D Laboratory on ‘eLearning Technologies and Standards’ with EPIQ’s HR and IT specialists</li> </ul> <p><b>6. Creation of Competence profiles (Nov. 2008 – Feb 2009)</b> for each of the pre-defined 8 key job positions based on the existing job profiles with the corresponding expert group. <b>Competence Catalog creation</b> as a well-structured compilation of competence profiles, categorized in communities.</p> <p><b>7. Creation of communities and competence profiles in PCM (Feb. 2009 – Mar.</b></p>

	<p>2009). Selection of employees to be trained.</p> <p><b>8. Creation of personal development plans, Mar 2009 – Apr. 2009</b> associated to competences and competence profiles created with the PCM for each target group containing basic learning activities, environments and resources</p> <p><b>9. Face-to-face working/training seminars, Mar 2009 – Apr. 2009</b>, at TU-Sofia and EPIQ-Botevgrad</p> <p><b>10. Promoting self-paced training of employees and assessment, Apr. 2009 – May 2009.</b> On-line competence-based training supported by the TENCompetence infrastructure.</p> <p><b>11. Planning and conduct evaluation, Mar. 2009 – May 2009</b> – evaluation plan, instruments, methods, schedule, gathering and processing evaluation data</p> <p><b>12. Write a final report on EPIQ Business Demonstrator, till July 2009</b></p>
Evaluation plan	<p>The main research and evaluation questions addressed during the EPIQ business demonstrator were the following:</p> <ul style="list-style-type: none"> <li>• To find the most appropriate methods to introduce and present the new concept for lifelong competence development and the new integrated Personal Competence Management System to the company management, HR specialists and trainees with a high professional level in the context of both electronic industry and ICT.</li> <li>• To discover the optimal way to interweave mastering both the process of the competence management and the Personal Competence Management System (PCM 2.0) within a real industry environment.</li> <li>• To evaluate the business benefits of the implementation of the TENCompetence solutions through mapping the business demonstrator issues to the European Foundation for Quality Management (EFQM) Excellence Model. This model recognises that excellent results with respect to performance, customers, people and society are achieved through leadership driving policy and strategy that is delivered through people, partnerships and resources, and processes.</li> <li>• To find the right balance between the face to face and technology enhanced training, enabling on-the-job learning to be implemented.</li> </ul> <p>See section A.12.3 for a further description of the evaluation methodology.</p>
Could you mention one or more results with which you would consider your demonstrator a success?	<ul style="list-style-type: none"> <li>• Formalizing the lifelong competence development processes in EPIQ.</li> <li>• Developing new integrated Personal Competence Management System to the company management, HR specialists and trainees with a high professional level in the context of both electronic industry and ICT.</li> <li>• Optimizing the process of the competence management using the Personal Competence Management System (PCM 2.0) within a real industry environment.</li> <li>• Generating serious business benefits from the implementation of the TENCompetence solutions by mapping it to the European Foundation for Quality Management (EFQM) Excellence Model.</li> <li>• Finding the right balance between the face to face and technology enhanced training, enabling on-the-job learning to be implemented.</li> </ul>

## A.12.2 Implementation

**TENCompetence framework integration:** Created 5 pilot communities within the PCM.

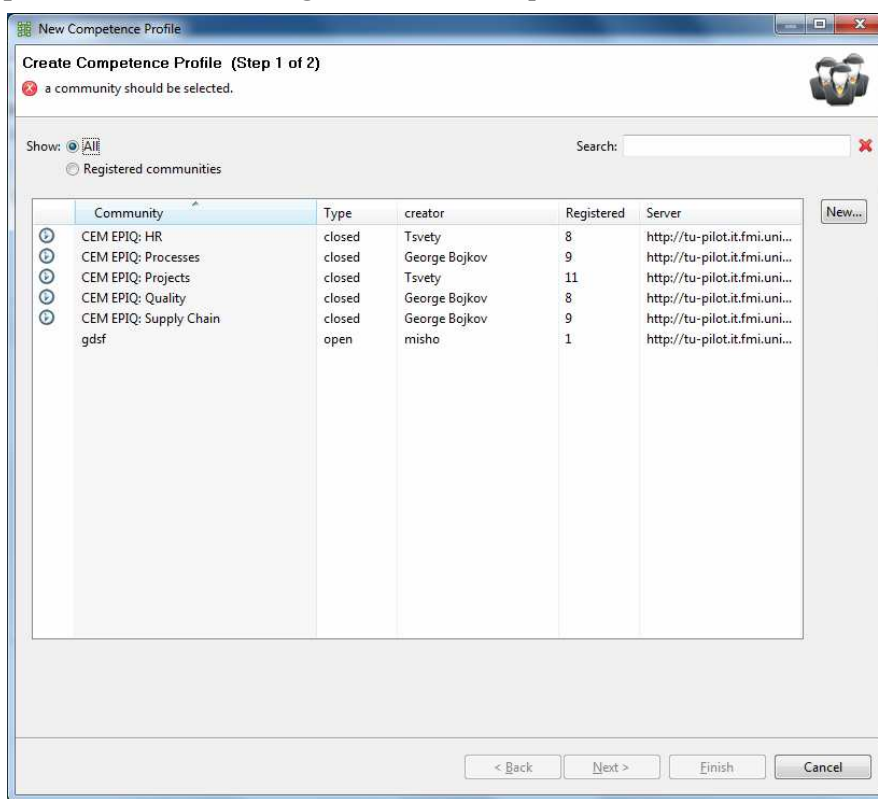


Figure A.12.1 EPIQ Pilot communities

**TENCompetence framework integration:** Created 8 competence profiles within PCM to serve as a basis for creation of Personal Development Plans within PDP:

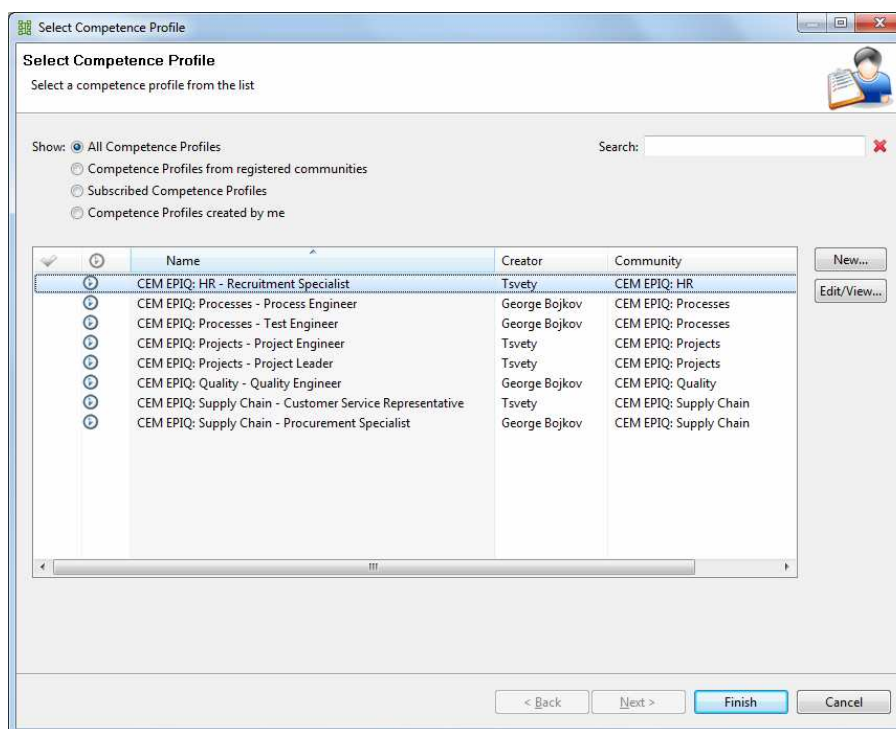


Figure A.12.2 EPIQ Pilot Competence Profiles

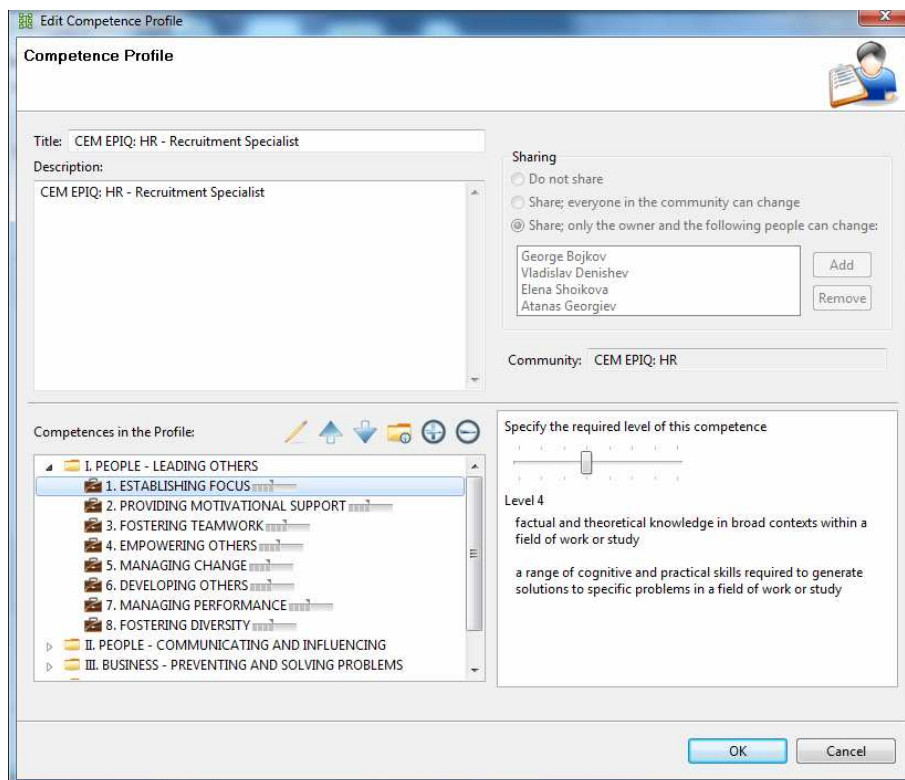


Figure A.12.3 PCM implementation of competence profile

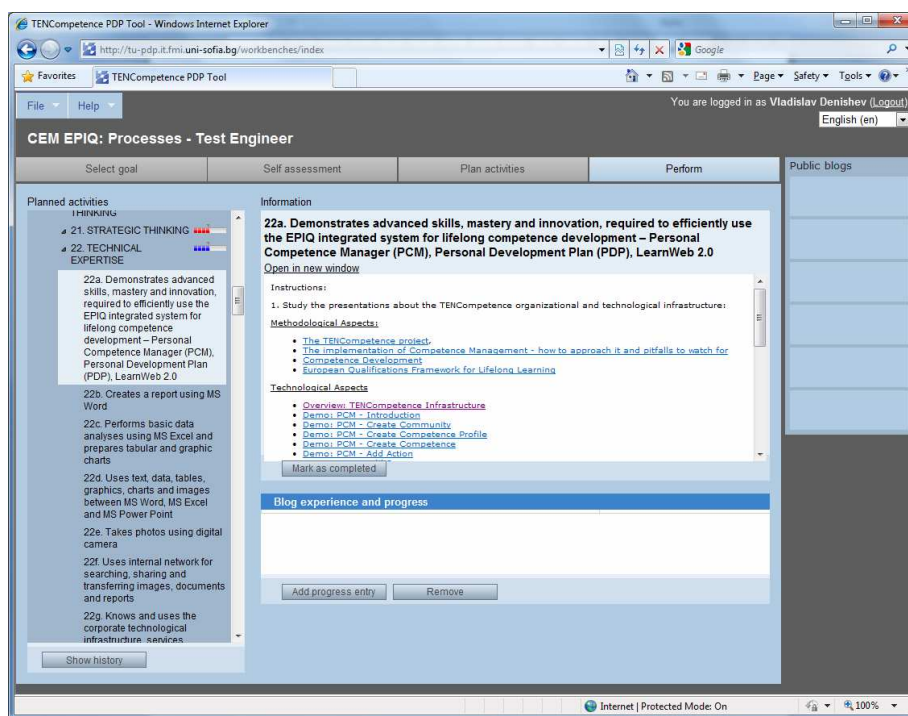
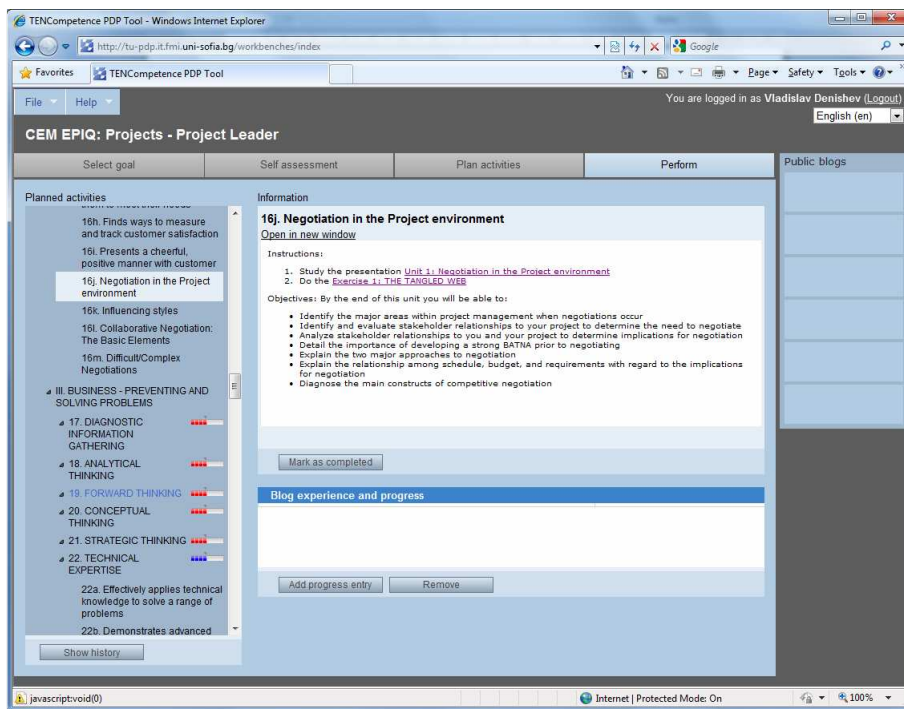


Figure A.12.4 PDP – TENCompetence framework-related training





**Figure A.12.5 PDP of Project Leader / Project Engineer**

### **A.12.3 Evaluation methodology**

The main instruments for gathering evaluation data:

- Unstructured interviews with stakeholders
- Meetings
  - o Meetings with top-management
  - o Meetings with HR experts
  - o Meetings with team-leaders
- Document reviews
  - o Existing job-descriptions overview
  - o Pre-BD ISO audit findings
  - o Post-BD ISO audit findings
  - o Existing training designs
  - o Existing knowledge resources
- Discussions
- Training monitoring
- Feedback from team-leaders: revised pilot competence profiles

### **A.12.4 Evaluation results**

The evaluation results of the BU EPIQ Business Demonstrator are presented in Table A.9.2 following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.12.2 Evaluation results of the BU EPIQ-2 Business Demonstrator**

Question	Answer
<b>3</b>	28
How many people will be reached in mid- and long-term plans after the business demonstrator is over?	4500



<b>5-7</b> Number of different user group types: There are three user groups involved in the EPIQ business demonstrator:	3
<i>At the company level:</i> The group of EPIQ management (top and middle) consists of 10 people (6 male & 4 female, age 25-40) on key positions, directly involved in decision making on competence management and business demonstrator implementation, as follows: <ul style="list-style-type: none"> <li>• HR Manager: Peter Vassilev</li> <li>• IT Manager: Svetoslav Kotev</li> <li>• Business Unit E2 Manager: Nikolay Tzankov</li> <li>• Project leader: Vassil Kotov</li> <li>• Process Manager: Lubka Batsalova</li> <li>• Quality Manager: Temenuzhka Katrandzhieva</li> <li>• Test Group Manager: Petko Goranov, Boriss Borissov</li> <li>• Transport and Logistic Manager: Daniela Georgieva</li> <li>• Customer Service Manager: Maria Bonovska</li> </ul>	
<i>At the Professional Community level,</i> we have identified <b>8 user groups</b> with 18 people (7 male & 11 female, age 25-40): <ul style="list-style-type: none"> <li>• <b>Project Engineer:</b> Hristo Yotov, Miroslav Kamenov</li> <li>• <b>Quality Support Engineer:</b> Iskra Garnyovska, Diana Dimitrova</li> <li>• <b>Test Engineer:</b> Petko Goranov, Majed Majed</li> <li>• <b>Process Engineer:</b> Maya Vazonova, Stefka Taneva</li> <li>• <b>Project Leader:</b> Vassil Kotov, Vassil Ducheve</li> <li>• <b>Customer Service Representative:</b> Boryana Staneva, Petya Petkova</li> <li>• <b>Procurement Specialist:</b> Denitsa Dimitrova, Stanislava Aleksieva</li> <li>• <b>Recruitment Specialist:</b> Albena Vassileva, Rossita Stefanova, Tsvetomila Mitova, Georgi Bojnikov</li> </ul>	
<i>Individuals at EPIQ:</i> with needs to develop some general or specific competences to perform their job better, to solve some types of problems or to learn to cope with specific situations; with a need to improve their career, who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge; who want to develop competences due to the intrinsic motivation to learn something in a certain area.	
<b>For what period of time have they been involved in lifelong competence development using the TENCompetence infrastructure?</b>	01 Nov 2008-30 Jun 2009
<b>How many participants have used the software?</b> 10 (PCM), PDP&LearnWeb2.0 (28)	28
<b>8</b>	10
<b>9</b>	7 (overlap)
<b>10</b>	3
<b>11</b>	6 (overlap)
<b>12</b>	6 (including support by SU)
<b>13</b>	N/A
<b>14</b>	Workplace
<b>15. How many hours have participants been involved in competence development?</b>	402 hours in total
<b>Effort: how many hours did they spend on which competences?</b> On competency 22a. <i>Demonstrates advanced skills, mastery and innovation, required to efficiently use the EPIQ integrated system for lifelong competence development – Personal Competence Manager (PCM), Personal Development Plan (PDP), LearnWeb 2.0</i> 96 hours	
<b>16- 17 -18</b>	See table A.12.1 for answers

19	10
20	N/A
21	28
22	28
23	N/A
24	N/A
25	N/A
26	N/A
27	N/A
28	General progress on the competences by the participants
29. Did they 'complete' the competence development plan? Yes	Yes
30. Do they wish to further develop this competence?	24 participants want to continue
<b>31, 32. Appreciation of learning experience: learning resources, learning routes, collaboration, control of own learning</b> <b>Preference of fixed versus flexible learning route</b> All team leaders (100%), in charge of gap analysis and training design, prefer to have <i>particular trainings</i> in the form of face-to-face and on-site training, supported by the knowledge resources, available in the TENCompetence PDP (blended mode trainings). Most of the trainees (83%) enjoy the possibility to get access to PDPs and recommended learning routes, they can follow in a flexible way (self-paced online learning).	83% are positive
<b>33. Extent to which they have made progress on those core use cases that are relevant to them</b> The participants have mastered these activities: <ul style="list-style-type: none"> <li>Assessing competences – all participants did self-assessment on competences in PDP</li> <li>Plan a route</li> <li>Build Competence Development Program</li> <li>Provide Support</li> <li>Conducting Learning Activities</li> <li>Develop Learning materials</li> </ul> Manage Personal Competence Management System 2.0	
<b>34. What type of competence development has been provided in the business demonstrator?</b> During the EPIQ business demonstrator variety of competence development activities were performed including blended learning (technology enhanced, web-based and face-to-face instructed training), self-organised learning with predefined goals and pre-selected learning activities and community of practice (voluntary knowledge exchange). Training was done through: <ul style="list-style-type: none"> <li>5 Monthly face-to-face <i>Resource panel</i> working &amp; training seminars organized by the TU-Sofia's team together with representatives of the <i>EPIQ top and middle management</i> at EPIQ-Botevgrad or TU – Sofia (started at 01 Nov 2008 until 30 May 2009);</li> <li>15 Weekly face-to-face <i>Resource panel</i> working &amp; training seminars (every Friday) at the TU – Sofia together with representatives of the <i>EPIQ's HR and IT specialists</i> (started at 01 Nov 2008 until 30 May 2009);</li> <li>2 On-site technology-enhanced and face-to-face training seminars: <ul style="list-style-type: none"> <li>"Stimulating Personal Development and Knowledge Sharing Through TENCompetence Organisational and Technological Infrastructure"(on 10 Apr 2009, 10:00 - 13:30, at EPIQ-Botevgrad) , 28 participants</li> <li>"Validation of the Pilot Competence Profiles: Project Engineer; Quality Support Engineer; Test Engineer; Process Engineer; Project Leader; Customer Service Representative; Procurement Specialist and Recruitment Specialist"( on 17 Apr 2009 (Friday), 14:00-17:00, at EPIQ-Botevgrad), 28</li> </ul> </li> </ul>	

participants

- 28 EPIQ staff - personal competence development (on-line training supported by the TENCompetence infrastructure):

**PDPs and Knowledge resources by Competence profile:**

№	Competence profile	Training Seminars & PDP & Knowledge Resources		Effort (Hours)	People	Total (Hours)
		TENCompetence implementation	EPIQ specific			
1	Recruitment Specialist	22a	22q	12+2	4	56
2	Project Leader	22a	16j,16k,16l, 16m, 22g	12+38	2	100
3	Project Engineer	22a	16j,16k,16l, 16m, 22g	12+38	2	100
4	Process Engineer	22a	22jj	12+2	2	28
5	Test Engineer	22a	22l	12+4	2	32
6	Quality Support Engineer	22a	22m	12+3	2	30
7	Customer Service Representative	21b	15c	12+2	2	28
8	Procurement Specialist	21b	15z	12+2	2	28
						<b>402</b>

All participants (28) are presently employed, and the pilot activities are integrated in their daily work as much as possible. The TU-Sofia staff and EPIQ HR Resource panel collaborators have devoted an entire day every Friday solely for EPIQ business demonstrator preparation and implementation. Users perform their competence development plans from their own workplace: either their own desk or a common computer room provided by the EPIQ. It is possible for users to work from homes, but it is not expected to be the rule.

**35. How has their functioning changed in [period since end of pilot]? What effect has following the business demonstrator played in changes in their functioning? NA**

**What was the job position held by the participants in the pilot, and how many participants held each position?**

*At the company level:* The group of EPIQ management (top and middle) consists of 10 people on key positions, directly involved in decision making:

*At the Professional Community & Individual level:* 8 user groups with 18 people

1. **HR Manager:** Peter Vassilev
2. **IT Manager:** Svetoslav Kotev
3. **Business Unit E2 Manager:** Nikolay Tzankov
4. **Project leader:** Vassil Kotov
5. **Process Manager:** Lubka Batsalova
6. **Quality Manager:** Temenuzhka Katrandzhieva
7. **Test Group Manager:** Petko Goranov, Boriss Borissov
8. **Transport and Logistic Manager:** Daniela Georgieva
9. **Customer Service Manager:** Maria Bonovska

10. **Project Engineer:** Hristo Yotov, Miroslav Kamenov
11. **Quality Support Engineer:** Iskra Garnyovska, Diana Dimitrova
12. **Test Engineer:** Petko Goranov, Majed Majed
13. **Process Engineer:** Maya Vazonova, Stefka Taneva
14. **Project Leader:** Vassil Kotov, Vassil Duchevev
15. **Customer Service Representative:** Boryana Staneva, Petya Petkova
16. **Procurement Specialist:** Denitsa Dimitrova, Stanislava Aleksieva
17. **Recruitment Specialist:** Albena Vassileva, Rossita Stefanova, Tsvetomila Mitova, Georgi Bojnikov

**What were the objectives for participating in the pilot?**

The objective of the three main user groups involved in EPIQ business demonstrator is to implement the innovative TENCompetence organizational and technological infrastructure to support:

<ul style="list-style-type: none"> <li>the <b>EPIQ management</b> in the adoption of the ‘competence’ concept as a base for all Human Resource related processes and activities (Recruitment &amp; Selection, Performance Management, Training &amp; Development, Succession Planning and Capability Mapping, Assessment Center Design and Establishment) as well as</li> <li>a variety of <i>professional communities</i> and <i>individuals</i> for stimulating personal competence development and knowledge sharing in an enterprise context.</li> </ul> <p><b>Was the business demonstrator related to the current job or job position of the participants?</b></p> <p>The participants in the EPIQ’s business demonstrator hold 8 pre-defined key job positions: Project Engineer; Quality Support Engineer; Test Engineer; Process Engineer; Project Leader; Customer Service Representative; Procurement Specialist and Recruitment Specialist.</p>											
<p><b>More on 35 Was the business demonstrator related to a future job or job position of the participants?</b></p> <p>Most of the participants in the EPIQ’s business demonstrator will keep their positions in the future. Because of the world economic crisis, some of the job positions may need to be consolidated, and the employees who are highly experienced and qualified will have to perform more complicated tasks and have a richer set of competences and/or higher competence level</p>											
<p><b>37. Type of organisation?</b></p> <p>EPIQ emerged as a group in 1998 and went public on NASDAQ Europe, but listed since October 2003 on EURONEXT Brussels. EPIQ accounts for 10 entities in 6 countries. The Group has currently companies in Belgium, Germany, France, Czech Republic, Bulgaria and Mexico. EPIQ plants have been certified in complete conformance to the requirements of ISO-9001, ISO-9002, ISO-14001, VALEO-1000, QS-9000 and/or TS-16949 standards. The business demonstrator is taking place at BU EPIQ-2 Botevgrad, Bulgaria. The factory is located at Botevgrad, Bulgaria.</p>											
<p><b>36. Number of total employees/users/... and number of those participating in the demonstrator?</b></p> <p>The Bulgarian section of EPIQ group has over 2500 employees. The business demonstrator is taking place at Business Unit EPIQ-2 Botevgrad, which has approximately 95 engineers and specialists. <b>28 of them are participating in the pilot.</b></p>											
<p><b>38. Type of business of the organisation</b></p> <p>Electronic industry</p> <p>EPIQ (Euronext Brussels: EPI) designs and produces electronic and electro-mechanical systems and sub-systems. EPIQ provides a wide range of integrated services from product development up to mass production. EPIQ designs and produces high-added-value electronics and electro-mechanical systems and subsystems, which are the control and operating components for end products in the consumer market. EPIQ manufactures, finishes and tests printed circuit boards and supply complete systems and subsystems. EPIQ also supplies the required engineering, research and development (R&amp;D), and logistic management, including JIT and SILS supply.</p>											
<p><b>39. Objective for the pilot</b></p> <p>Develop a pilot implementation of the innovative TENCompetence organizational and technological infrastructure to support</p> <ul style="list-style-type: none"> <li>the <b>EPIQ management</b> in the adoption of the ‘competence’ concept as a base for all Human Resource related processes and activities (Recruitment &amp; Selection, Performance Management, Training &amp; Development, Succession Planning and Capability Mapping, Assessment Center Design and Establishment) as well as</li> <li>a variety of <i>professional communities</i> and <i>individuals</i> for stimulating personal competence development and knowledge sharing in an enterprise context.</li> </ul>											
<p><b>40. Use cases covered by the business demonstrator in the organisation</b></p> <p>All use cases (Assessing competences, Plan a route, Build Competence Development Program, Provide Support, Conducting Learning Activities, Develop Learning materials, Manage Personal Competence Management System 2.0) have been examined and adopted by the EPIQ stakeholders because they are closely connected to the competence-based HR management process (see Table in 4.6).</p>											
<p><b>41. Relation of use cases to the business processes in the organisation</b></p> <table border="1"> <thead> <tr> <th>No</th><th>Core use case</th><th>Description</th><th>Related existing or new establishing business</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>				No	Core use case	Description	Related existing or new establishing business				
No	Core use case	Description	Related existing or new establishing business								

			processes
1	<b>Assessing competences</b>	Assess competence is the process whereby the learners' level of a competence is measured by an assessor, by assessing: - the results of learning activities - the gap between the previously obtained and recognized competences and the desired competences - the competences to obtain, which are part of a competence development programme. Methods for assessment of competences can vary from several forms of performance assessment such as, peer assessment, self-assessment, portfolio assessment, 360 degree assessment etc., combined with the more traditional forms of assessments such as multiple choice questions, fill in the blanks, and multiple response questions. All preparations, evaluation and reporting of results are part of the assessing competence use case.	<ul style="list-style-type: none"> <li>• <b>Recruitment &amp; Selection</b></li> <li>• <b>Performance Management</b></li> <li>• <b>Training &amp; Development</b></li> <li>• <b>Succession Planning and Capability Mapping</b></li> <li>• <b>Assessment Centre Design and Establishment</b></li> </ul>
2	<b>Plan a route</b>	Plan route presents the learner with the best possible sequence of learning activities in order to obtain a certain competency/learning objective. The learner receives a roadmap by which he or she can navigate efficiently through the various learning activities. A study advisor can help the learner define the sequence of learning activities.	<ul style="list-style-type: none"> <li>• <b>Performance Management</b></li> <li>• <b>Training &amp; Development</b></li> <li>• <b>Assessment Centre Design and Establishment</b></li> </ul>
3	<b>Build Competence Development Program</b>	Build Competence Development programme presents the learner with the set of learning activities which he or she has to perform to attain the competences for a certain function/job/diploma. The competence development programme presents the learner with the whole list of learning activities to conduct in order to become e.g. a senior test engineer or project leader, a master in psychology etc. A competence manager helps the learner to find and understand the needed competences.	<ul style="list-style-type: none"> <li>• <b>Performance Management</b></li> <li>• <b>Training &amp; Development</b></li> </ul>
4	<b>Provide Support</b>	The provision of support helps the learners to conduct the learning activities. This support can take many forms, such as coach, tutor, helpdesk, peer assistant, FAQ's, support agents etc.	<ul style="list-style-type: none"> <li>• <b>Training &amp; Development</b></li> </ul>
5	<b>Conducting Learning Activities</b>	Conducting learning activities means the actual undertaking of courses, lessons, e-Learning, traineeships (by a learner) or any other activity to achieve a certain learning objective (competence, skills, knowledge, and attitudes). Usually a learner conducts several learning activities to obtain a learning objective.	<ul style="list-style-type: none"> <li>• <b>Training &amp; Development</b></li> <li>• <b>Assessment Centre Design and Establishment</b></li> </ul>
6	<b>Develop Learning materials</b>	Learning materials are all the materials needed by a learner to learn. These materials include books, articles, HTML pages and computer programmes among others. The development of learning materials is supported as is the need to find appropriate learning materials in knowledge management (learning objects) repositories. The learning materials are usually developed by subject matter experts/content authors.	<ul style="list-style-type: none"> <li>• <b>Training &amp; Development</b></li> <li>• <b>Assessment Centre Design and Establishment</b></li> </ul>
7	<b>Manage Personal</b>	The Personal Competence Management System is the software package of the	<ul style="list-style-type: none"> <li>• <b>Recruitment &amp; Selection</b></li> </ul>

	<b>Competence Management System 2.0</b>	integrated TENCompetence system. All development work within TENCompetence adds to this, making it TENCompetence's primary software package. 'Manage PCM' entails the management (installing, running and monitoring servers) and maintenance (installing software patches and updates) of the software in order to provide a durable facility to end users. This work is usually done by an operator.	<ul style="list-style-type: none"> <li>• <b>Performance Management</b></li> <li>• <b>Training &amp; Development</b></li> <li>• <b>Assessment Centre Design and Establishment</b></li> </ul>	
<b>42. Categories of educational facilitators</b> Continuing vocational education and training (cVET)				
<b>43. From the authors, assessors, facilitators, and the rest of the roles (excluding the learners), how many participants appreciate positively their experience based on TENCompetence, how many are neutral in their appreciation and how many rate it as negative</b> 1) how many like to continue with the approach, <b>24 out of 28</b> 2) how many won't like to continue with the approach, <b>0</b> 3) how many are undecided to continue with the approach, <b>4 out of 28</b>				
<b>44. How setting-up the business demonstrator has affected the provider?</b> <b>Have the training department shifted from a content-based approach to a competence-based approach? Have the training department used distance learning for the first time?</b> The EPIQ training department has delivered traditional topic-based onsite corporate training that was time-consuming and a better effectiveness is desired. There is no centralized knowledge management system or a digital repository of learning resources available. Very detailed materials, instructions and training plans are available though. There is narrow focus on ICT tooling & innovation. There is a lack of tailored virtual learning support. Traditional training practices provide too little effective and efficient support to the users. The availability of support is crucial for effective task performance. Old pedagogical and organizational models for learning do not meet the demands and possibilities of lifelong competence development and the new learning technologies that are available. The value of the TENCompetence concept and the Personal competence management system, applied in the business demonstrator, are estimated by the EPIQ management as a needed innovation that stimulates the shift to competence based training supporting organisational knowledge capturing and exchange, where human knowledge is created and expanded through social interaction.				
<b>46. Number of business cases (models) shown in the demonstrator</b> There are <b>5 business processes</b> at EPIQ affected by the TENCompetence business demonstrator: (1) Recruitment & Selection, (2) Performance Management, (3) Training & Development, (4) Succession Planning and Capability Mapping, (5) Assessment Centre Design and Establishment. The Table below presents a brief analysis of each process considering the main services and their status (Improved – 2, New established- 6, In progress-4, Mid-term plans-5, Long-term plans-4 ) at EPIQ by the end of the pilot together with expected benefits.				
1	<b>Recruitment &amp; Selection Services</b> <ul style="list-style-type: none"> <li>• Getting the role specification right and designing a recruitment process that attracts the right candidates</li> <li>• Designing and supporting assessment &amp; selection processes that identify, quantify and differentiate the capabilities of good candidates</li> <li>• Design and delivery of 'Behavioural' interview techniques, which independent research</li> </ul>	<b>Status of the Services by the completion of EPIQ BD</b> <ul style="list-style-type: none"> <li>• Improved</li> <li>• New established</li> <li>• Mid term plans</li> </ul>	<b>Recruitment &amp; Selection Benefits</b> <ul style="list-style-type: none"> <li>• Reduce staff turnover</li> <li>• Reduce recruitment costs</li> <li>• Reduce training costs</li> <li>• Improve new staff productivity</li> <li>• Improve long-term performance</li> <li>• Improve the return on training &amp; development investment</li> </ul>	



	<p>indicates are significantly more effective at predicting success in role than conventional interviewing</p> <ul style="list-style-type: none"> <li>Consolidating and analyzing assessor analysis to ensure full and detailed feedback against the needs of the role, of critical importance particularly for internal promotion selection processes</li> <li>Training internal assessors in the process skills necessary for effective, high-quality and non-discriminatory selection</li> </ul>	<ul style="list-style-type: none"> <li>Improved</li> <li>New established</li> </ul>	
<b>2</b>	<b>Performance Management Services</b>	<b>Status of the Services by the completion of EPIQ BD</b>	<b>Performance Management Benefits</b>
	<ul style="list-style-type: none"> <li>Integrating competencies into existing or new performance management processes</li> <li>Designing or integrating with 360° or other multi-rater processes</li> <li>Validating, calibrating and assuring the quality of performance management process output</li> <li>Creating effective links between capability, performance and compensation</li> </ul>	<ul style="list-style-type: none"> <li>New established</li> <li>Long term plans</li> <li>In progress</li> <li>Mid term plans</li> </ul>	<ul style="list-style-type: none"> <li>Improve the accuracy, consistency and reliability of performance data, within cultures and across multiple cultures for international organization</li> <li>Improve the motivation of employee</li> <li>Capture and integrate behavioural measures with quantitative measures of performance</li> <li>Improve the performance and capability development output from the company process</li> <li>Accurately target rewards and incentives effectively across the international business environment</li> </ul>
<b>3</b>	<b>Training &amp; Development Services</b>	<b>Status of the Services by the completion of EPIQ BD</b>	<b>Training &amp; Development Benefits</b>
	<ul style="list-style-type: none"> <li>Identifying training &amp; development needs accurately and methodically across key behavioural and technical competencies</li> <li>Enabling accurate 'gap</li> </ul>	<ul style="list-style-type: none"> <li>In progress</li> <li>New established</li> </ul>	<ul style="list-style-type: none"> <li>Radically improve the accuracy of T&amp;D needs analysis</li> <li>Deliver comprehensive T&amp;D plans for</li> </ul>



	<p>analysis' between the capability of the individual and the requirements of current or future roles</p> <ul style="list-style-type: none"> <li>Facilitating reality-based assessment and valuable feedback through 'critical incident' focus</li> <li>Identifying and quantifying T&amp;D needs across teams, functions, locations and units, translating into comprehensive T&amp;D plans</li> <li>Supporting technology enhanced lifelong personal competence development</li> </ul>	<ul style="list-style-type: none"> <li>Long term plans</li> <li>Mid term plans</li> <li>In progress</li> </ul>	<p>individuals, teams, functions, units</p> <ul style="list-style-type: none"> <li>Create T&amp;D processes that identify and deliver the most effective interventions, sensitive to the cultural norms of international staff</li> <li>Radically improve the return on T&amp;D investment and build the 'human capital' of the organization</li> </ul>	
<b>4</b>	<b>Succession Planning and Capability Mapping Services</b>	<b>Status of the Services by the completion of EPIQ BD</b>	<b>Succession Planning and Capability Mapping Benefits</b>	
	<ul style="list-style-type: none"> <li>Building succession-planning processes that focus on and deliver the competencies the organization needs for its current and future roles, not to match job-descriptions and boxes on organization charts that will be out-of-date by the time the position is available</li> <li>Enabling the identification and accessibility of competency anywhere in the organization, when it is needed</li> <li>Enabling organizations to build accurate 'maps' of capability across teams, functions, business units, locations, countries and regions</li> </ul>	<ul style="list-style-type: none"> <li>New established</li> <li>In progress</li> <li>Mid term plans</li> </ul>	<ul style="list-style-type: none"> <li>Identify the capabilities the organization needs for its future, not its past</li> <li>Quantify and analyze capability gaps at organization level, against the strategic requirements of the business, internationally</li> <li>Identify capability surpluses that can be utilized in other parts of the organization</li> </ul>	
<b>5</b>	<b>Assessment Centre Design and Establishment Services</b>	<b>Status of the Services by the completion of EPIQ BD</b>	<b>Assessment Centre Design and Establishment Benefits</b>	
	<ul style="list-style-type: none"> <li>Designing and building assessment centre processes that can be delivered on flexible platforms as events, in modular form, in 'virtual' form, in self-assessment formats, in tight or extended time-scales</li> <li>Utilizing behavioural-event assessment</li> </ul>	<ul style="list-style-type: none"> <li>Long term plans</li> <li>Long term plans</li> </ul>	<ul style="list-style-type: none"> <li>Significantly improve the credibility of assessment feedback</li> <li>Develop Assessment processes that are genuinely effective across multiple cultures - not just in the</li> </ul>	

	<p>focused against competence-based role profiles, in selection and / or development scenarios</p> <ul style="list-style-type: none"> <li>Ensuring accurate and appropriate use of psychometrics, capability measures and other methodologies</li> <li>Ensuring effective assessor training and consistent evaluation of capability</li> <li>Delivering design that ensures applicability and fair assessment across multiple cultures</li> </ul>	<ul style="list-style-type: none"> <li>New established</li> <li>New established</li> <li>Mid term plans</li> </ul>	<p>home-country of the organization - so that the international strategic needs of the business can be met</p> <ul style="list-style-type: none"> <li>Enable flexible delivery that engages individuals and delivers the information and capability the organization needs</li> </ul>	
<p><b>48. Resources (external to TENCompetence project) invested in carrying out the demonstrators</b></p> <p>EPIQ invested company resources in the form of:</p> <ol style="list-style-type: none"> <li>1. New IT infrastructure establishment – 4 new laptops, 1 server</li> <li>2. Staff involvement (company paid mandays) for participation in the following events: <ul style="list-style-type: none"> <li>Monthly face-to-face Resource panel working &amp; training seminars 5 x 4 people = 20 mandays;</li> <li>Weekly face-to-face Resource panel working &amp; training seminars 15 x 3 people = 45 mandays</li> <li>On-site technology-enhanced and face-to-face training seminars: 2 x 28 people = 56 mandays;</li> </ul> </li> </ol> <p>EPIQ staff – personal competence development (on-line training supported by the TENCompetence infrastructure): 28 people x 4 hours (per person, on average) = 14 mandays</p>				
<p><b>49. EPIQ will use TENCompetence framework beyond November 2009</b></p>				
<p><b>50. Number of organizations that decide to install the TENCompetence tooling in their own servers</b></p> <p>Single organization – EPIQ group, with many business units, geographically distributed around Europe. EPIQ plans to install the TENCompetence system in their organization.</p>				
<p><b>51. Number of organizations that decide to customize the TENCompetence tooling to adapt it better to their organization (e.g., styles, integration with exiting tooling in the organization)</b></p> <p>Single organization – EPIQ group, with many business units, geographically distributed around Europe.</p>				
<p><b>52. All the expected business benefits identified in Table A.9.1 were reached. This includes the development of the new EPIQ Competence Catalogue, the new Competence Development plans and their successful implementation in practice, and the shift of content-based to competence-based training in EPIQ.</b></p>				

### **A.12.5 Discussion**

This appendix has presented the successful implementation of the business demonstrator in Bulgaria for the high-technology company in electronic industry EPIQ EA. It has been prepared from information gathered by all participants in the EPIQ business demonstrator that was coordinated by Elena Shoikova, Technical University – Sofia in collaboration with Peter Vassilev, EPIQ HR Manager, TENCompetence Associate Partners.

The business demonstrator was designed and took place in the final stage (cycle 3) of the TENCompetence Evaluation work (WP4). It is related to the TENCompetence project

evaluation objective: To ensure the validity and viability of the approach during the project by performing real-life pilot implementations in different organisational and international settings. During the establishment of the technological infrastructure (a dedicated private server was set up for security reasons and protection of company know-how) we have received a very flexible and timely support by the colleagues from the Sofia University team, which made it possible to resolve on the fly some minor problems identified in the implementation of the pilot project and achieve the final success.

The EPIQ business demonstrator has a unique piloting scenario because it involves an organisation, that has no previous experience with the “competence” concepts, and has to make the entire shift (both methodologically and practically) from the traditional types of training and (some) knowledge management, to the competence-based HR management process, supported by the TENCompetence infrastructure.

The successful implementation of the EPIQ Business Demonstrator is also proved by the annual ISO audit conclusions. Last year, during the ISO TS audit by Mr. Jan Myska, was noticed that the company hasn't prepared competence profiles for its employees. The company received an unsatisfactory mark and a recommendation for improvement in the area of HR development processes. On 29.04.2009 the company had another audit by Mr. Jan Myska, and after reviewing the newly established organizational and technological competence-based infrastructure (competence profiles, activities, knowledge resources) and the implemented competence management services as well as the company vision, strategy and roadmap for competence-based improvement, the final audit conclusion for this area was satisfactory:

*“Necessary/desired competence profiles are defined for 9 key functions in the organization (white collars) and for different categories of workers. In total, 29 items were defined for each function - improvement since the last audit.”*

As a first step in the EPIQ Business Demonstrator design, an intensive research, unstructured interviews, review of existing documents and plans were made. The conclusions include the following EPIQ bottlenecks:

- There is a lack of competence profiles. Job descriptions are available, but not a detailed and well structured competence catalogue.
- Absence of assessment centre. Also, it is hard to assess the competencies of applicants, employees and learners who have studied and worked in a variety of settings and multiple countries
- Current training practices provide too little effective and efficient support to the users. The availability of support is crucial for effective task performance.
- Current pedagogical and organizational models for learning do not meet the demands and possibilities of lifelong competence development and the new learning technologies that are available
- The traditional topic-based onsite corporate training process is time-consuming and a better effectiveness is desired
- There is no centralized knowledge management system or a digital repository of learning resources available. Very detailed materials, instructions and training plans are available though.
- Narrow focus on ICT tooling & innovation. There is a lack of tailored virtual learning support.
- Worlds of competence management, knowledge management and organisational learning are not integrated: many fragmented methods & tools
- For individuals, groups and organizations it is hard to get an overview of all the possible formal and informal learning opportunities that are available and to identify the most appropriate ones.

The main research and evaluation questions addressed during the EPIQ business demonstrator were the following:

- To find the most appropriate methods to introduce and present the new concept for lifelong competence development and the new integrated Personal Competence Management System to the company management, HR specialists and trainees with a high professional level in the context of both electronic industry and ICT.
- To discover the optimal way to interweave mastering both the process of the competence management and the Personal Competence Management System (PCM 2.0) within a real industry environment.
- To evaluate the business benefits of the implementation of the TENCompetence solutions through mapping the business demonstrator issues to the European Foundation for Quality Management (EFQM) Excellence Model. This model recognises that excellent results with respect to performance, customers, people and society are achieved through leadership driving policy and strategy that is delivered through people, partnerships and resources, and processes.
- To find the right balance between the face to face and technology enhanced training, enabling on-the-job learning to be implemented.

The introduction of the TENCompetence methodology, organisational and technological infrastructure influences key management processes. This makes it a project that has its scope in the mid- and long-term plans of the company, because the processes take time to develop and become an established practice. The EPIQ business demonstrator has one of its first tasks to influence the EPIQ decision-makers to adopt the innovative concept, which requires their familiarisation and support through working/learning seminars, brainstorming, etc. This is a delicate and time-consuming process, since the management has a lot of responsibilities and are usually the most difficult to reach target group, especially during the last months of the world economic crisis. Nevertheless, the representatives of the EPIQ management in the Bulgarian business units demonstrate a deep interest to implement and further disseminate the TENCompetence organisational and technological infrastructure at an international level (Belgium, Germany, France, Czech Republic, and Mexico).

At community and individual level, there is no experience or established practices for competence management and technology-enhanced learning. This starting point also makes it hard to implement the innovative TENCompetence concepts, and in turn requires time and systematic preparation and implementation. Despite of these limitations, we achieve a satisfactory progress, with a tendency for a sustainable implementation in the EPIQ group. Due to the fact that EPIQ is a high-tech organisation with a huge number of competence profiles (149) and individual competences (around 300 competences per profile) the pilot is focused on 8 key job positions, which have their complete competence profiles prepared. A proper training has been designed and learning activities have been conducted for a limited number of competences (10) as an example practice for the EPIQ HR management to follow. Further trainings and resources will be designed for all competences as an ongoing process during and after the business demonstrator is over. As a whole, the impact of the EPIQ business demonstrator implementation and adoption of the “Competence” concept at EPIQ has lead to the improvement and introduction of new HR-related processes and activities including Recruitment & Selection, Performance Management, Training & Development, Succession Planning & Capability Mapping, Assessment Center Design and Establishment.

### **A.12.6 Data collection instruments**

See section A.12.4.

## Appendix 13: LearnWeb 2.0 for Self-Directed Learning

### A.13.1 Description of the business demonstrator

**Table A.13.1 Description of the Empower Limburg Business Demonstrator**

<b>LearnWeb 2.0 for Self-Directed Learning</b>	
<p>Short description:</p> <p>As a business demonstrator, the Elsa will conceptualise a learning environment including LearnWeb 2.0. LearnWeb 2.0 will be used by learners for self-directed learning during a whole semester. This development contains furthermore a special exercise for learners where they get the necessary competence of media.</p> <p>The Elsa will develop a research design, conduct logfile analysis and group interviews. The results of the study will be documented and all data sets will be made available. The L3S will take care of setting up the technological framework.</p>	
Name and description of the Associate Partner	<p><b>Elsa – eLearning Service Abteilung</b></p> <p>The mission of Elsa is to provide extensive support and advice for the deployment of new technology and media in the learning practice. We cover a wide range of learning technologies, from wikis and learning management systems to the recording of seminars and online learning programs.</p> <p>Elsa is part of the ZEW, the Competence Center for Continuous Education of the University of Hannover. The ZEW develops and provides seminars in the context of adult education for a wide range of institutes in Lower Saxony. Partners include the Architektenkammer Niedersachsen and the International Association for Consulting Competence e.V.</p>
User groups	<p><b>Individual people</b> People who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge.</p> <p><b>Groups or Teams</b> Groups who want to share knowledge, skills and points of view to develop their insights and competencies in the field (e.g. research teams).</p>
Setting	<p>The approximately 30 participants follow a course on the use of new media in education. A class-based introduction to LearnWeb 2.0 will make the participants familiar with the functionalities of the software. The following weeks, the participants will use Learn-Web 2.0 for self-directed and collaborative learning, with a focus on competence development for new media.</p>
Roles	<ul style="list-style-type: none"> <li>- staff installing the software: 1 person (L3S)</li> <li>- developer of the GUI container linking to TENC tools: n.a.</li> <li>- content developer: 1 person (Elsa)</li> <li>- community creator: 1 person</li> <li>- staff providing technical support (help-desk functions?): cooperation elsa/L3S</li> <li>- learner: approximately 30 persons</li> <li>- expert: 1 person</li> <li>- tutor/teacher/coordinator/mentor/study advisor: 1 person</li> <li>- researcher: 1 person</li> </ul>

	<p>- pilot evaluator: 2 persons (L3S)</p> <p>The roles of content developer, community creator and tutor will most likely be combined.</p>
Tooling	<p>The business demonstrator involves LearnWeb 2.0. The following objectives are relevant to the demonstrator:</p> <ol style="list-style-type: none"> <li>1. Support new pedagogical &amp; organisational models for Lifelong Competence Development</li> <li>2. Support individuals to search the most suitable formal and informal learning activities</li> <li>3. Stimulate pro-active sharing of resources</li> </ol>
Aim and expectation of the demonstrator	<p>The research design describes the approach for the study and the proceeding. All necessary steps and instruments (questionnaires, methods/procedures, etc.) will be itemized. Central research questions are:</p> <ul style="list-style-type: none"> <li>- Will the students use LearnWeb 2.0 for the self-directed learning?</li> <li>- Which features of LearnWeb 2.0 will be used? What are the most significant tools?</li> <li>- Use students the possibility for cooperative learning with Learn-Web 2.0?</li> </ul> <p>The following types of learning will be supported by LearnWeb 2.0:</p> <ul style="list-style-type: none"> <li>- instructed education and training</li> <li>- self-organised learning</li> <li>- knowledge management (mandatory knowledge exchange)</li> </ul>
Context	<p>As a business demonstrator, the Elsa will conceptualise a learning environment including LearnWeb 2.0. In this lecture LearnWeb 2.0 should be used by the students for self-directed learning during the whole semester. This development contains furthermore a special exercise for students where they get the necessary competence of media.</p> <p>The Elsa will develop a research design, conduct logfile analysis and group interviews. The results of the study will be documented and all data sets will be made available. The L3S will take care of setting up the technological framework.</p>
Business model / case shown in the demonstrator	<p>The Elsa provides active elearning support for a wide range of educational activities, with different target groups – varying from higher education students to adult education.</p> <p>Marc Krüger, representative of the Elsa, states that if the pilot turns out to be successful, the Elsa will be eager to include LearnWeb 2.0 in its portfolio of elearning instruments, to be offered to cooperating partners. The Elsa has the technological background for deploying LearnWeb 2.0 on their own servers.</p>
Business / valorization opportunities	See above.
Relevance of TENCompetence for the demonstrator context	<p>The purposes of the pilot are two-fold: first, the pilot will provide the TENCompetence project with quantitative and qualitative data on the practical use of LearnWeb 2.0, including usability evaluation. Second, the Elsa will get acquainted with the LearnWeb 2.0 environment and develop practices for the deployment of the system in learning environments.</p>
Competence profiles and competences involved	Knowledge of and the ability to work with (new) electronic media for teaching and learning.
Training needs	The Elsa team is familiar with learning technology. Training on LearnWeb 2.0 and support while setting up the environment will be given on a one-to-one basis and depending on arising needs.



Implementation plan	<p>The elsa will develop a research design, conduct logfile analysis and group interviews. The results of the study will be documented and all data sets will be made available. The L3S will take care of setting up the technological framework.</p> <p>The timeline for the demonstration activity is as follows:</p> <ul style="list-style-type: none"> <li>• mid-April: deployable and demonstratable version of LearnWeb 2.0 ready (L3S)</li> <li>• End of April: preparation of the learning material (contents) and creation of the groups' tasks done (elsa)</li> <li>• 2 or 3 May: Group introduction of LearnWeb 2.0 (L3S, elsa)</li> <li>• May - July: participants work with LearnWeb 2.0 (L3S: technical support, logging; elsa: supervision)</li> <li>• Early July: group interview (elsa), log analysis (L3S)</li> <li>• Early September: feedback on results from business partners elsa + expressions of interest (elsa)</li> </ul>
Evaluation plan	<p>The collection of qualitative and quantitative data on the benefits of LearnWeb 2.0 in self-directed learning is an integral part of the business demonstrator. Log files will be analysed, group interviews will be held and business partners of the elsa will be asked to express their interest in LearnWeb 2.0, based on the results of the evaluation.</p>
Could you mention one or more results with which you would consider your demonstrator a success?	<p>Central issues for Elsa are:</p> <ul style="list-style-type: none"> <li>- Will the learners use LearnWeb 2.0 for the self-directed learning?</li> <li>- Which features of LearnWeb 2.0 will be used? What are the most significant tools?</li> <li>- Do learners use the possibility for cooperative learning with Learn-Web 2.0?</li> </ul>

### A.13.2 Implementation

*LearnWeb2.0* is a tool developed to support self-directed lifelong learning with the help of Web 2.0 tools. The idea behind *LearnWeb2.0* is the enabling of learning and skill development through the sharing of knowledge resources with other users. According to the principle of collective intelligence in the Web 2.0, media resources can better be assessed by users using the common exchange of meta-information about those resources, such as comments, reviews or tags. As in other social software, in particular tagging can be used to categorize the resource. A rating can be used as an estimation of the quality of the resource. By using comments, the resource can be more easily assessed regarding to the usefulness for the own learning process.

The evaluation focus on two major *LearnWeb2.0* functionalities for the exchange of knowledge resources with other users, which are described in this section.

#### Web 2.0 search engine

The most basic function in LearnWeb 2.0 is *concurrent search* in different Web 2.0 applications, such as *Flickr*, *Youtube*, *Delicious* and *last.fm*. Those services can be searched with arbitrary keywords in order to find relevant media resources, including videos, pictures, bookmarks and audio files. *LearnWeb2.0* is not intended to replace existing Web 2.0 services, but to combine and integrate them. At the time of the evaluation, the supported Web 2.0



services and resource formats in *LearnWeb2.0* were: *Flickr* (pictures, photos), *YouTube* (videos), *Vimeo* (video), *Ipernity* (pictures, photos, Word documents), *last.fm* (audio), *Delicious* (bookmarks, link lists), *Slideshare* (presentations), *GroupMe!* (groups) and *Facebook* (contacts, friends). Figure A.13.1 shows an example search result for the search term "media consumption".

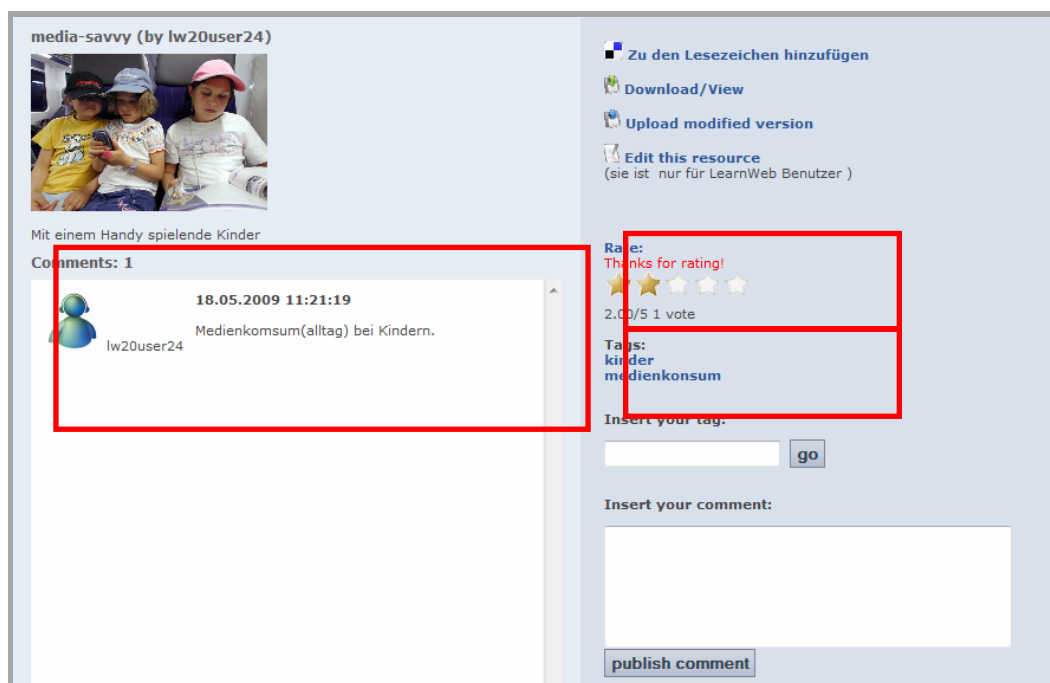


Figure A.13.1 Search result for search term "media consumption" in LearnWeb2.0

## Functions for the management and organization of resources

The second *LearnWeb2.0* major functionality is the provision of several tools that help to manage and organize the found, relevant resources in a collaborative manner. After the search a link to the resources can be added to *LearnWeb2.0*. With this activity, a Web 2.0 resource becomes a so called "knowledge resource" associated with the user adding the resource and can also be viewed and used by other *LearnWeb2.0*-users in order to edit meta-information about it.

All *LearnWeb2.0* resources are available in a personal storage for further use. They can be commented, rated and tagged. As the personal *LearnWeb2.0* resources are visible for all other *LearnWeb2.0*-users, they can also contribute ratings, tags or comments. In this way the users can create a common description and evaluation of the resource that can be exploited for collaborative working and learning processes. Figure A.13.2 shows an example of the three functions described in the application for an image resource on the subject of "media consumption".



**Figure A.13.2 Media resource and additional rating, tagging or commenting**

Another function is aggregation, which allows for collecting resources collaboratively in one user group. Therefore the integrated Web 2.0 service *GroupMe!*<sup>1</sup> is used, enabling users to organize media resources thematically in a drag and drop manner. Groups in *GroupMe!* can be arbitrarily created and are always topic/tag-specific. *GroupMe!* does not provide functionality for organizing users, known from other social communities, they only aggregate and bundle different media resources.

To make use of *LearnWeb2.0* in a university seminar, a learning scenario was developed and evaluated, in which the students use *LearnWeb2.0* for collaborative web search and aggregation of resources for the preparation of group presentations. In the next section the framework requirements and iterations of this learning scenario are described in detail.

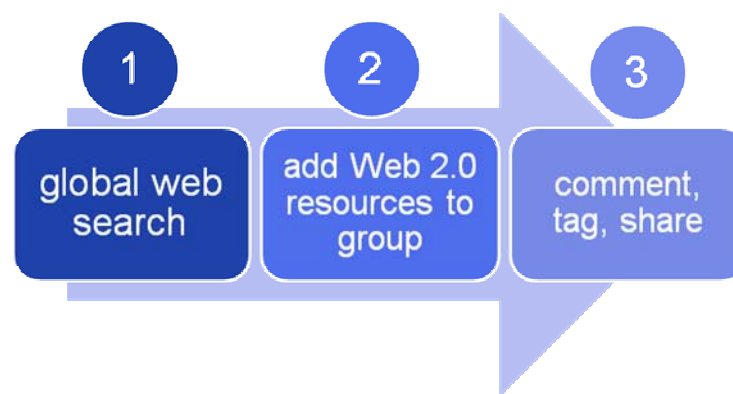
<sup>1</sup> <http://www.groupme.org> (12.12.2009)

### A.13.3 Evaluation methodology

For the application of *LearnWeb2.0* and the learning scenario we selected a seminar on pedagogy at the University of Hanover in the summer term of 2009. The seminar was attended by 15 students of the Bachelor “Special Education and Technology Education” and focused on the topic „Network Generation“. The purpose of the seminar was collaborative research and presentation of results of one seminar topic per group. While working on their topics, the students were supposed to check out different Web 2.0 tools and techniques, like Wikis, Blogs or Podcasts.

In this learning scenario, the students were subdivided in groups and they were encouraged to make collaboratively use of *LearnWeb2.0* for web searches for the preparation of their group presentations. According to our scenario, they were supposed to use in particular the search function and the aggregation function of the integrated service *GroupMe!*.

The first step was the search for media resources with various search terms derived from the topics of the presentation theme. In the second step, the relevant resources were added to the personal *LearnWeb2.0* storage and assigned to the own group in *GroupMe!* Subsequently, in step three the users were able to aggregate resources within the group and to immediately comment, rate, or to tag them. Figure 3 illustrates these three steps of the learning scenario:



**Figure A.13.3 Learning Scenario with LearnWeb2.0**

#### ***Introduction to LearnWeb2.0 for the learners***

The learning scenario and the tool *LearnWeb2.0* were presented to the seminar participants in a 45-minutes introduction. Subsequently, the students were instructed to perform a first exercise. In a second exercise, the self-directed usage of *LearnWeb2.0* was fostered. The students were enabled to get used to the work environment and to search for resources for their presentations on their own.

After this session, the students were supposed to use the tool voluntarily to prepare their group presentations. For the period of this self-dependent work phase - which took place outside the regular seminars - the participants were provided with contact information in case the learners needed technical support. Furthermore, we set up a help web page with examples on how to use the functions of *LearnWeb2.0* and the instructions we gave in the introduction. The results of the evaluation described next show in detail, to what extent the presented educational scenario was adopted by the learners (voluntary use), how the online collaboration took place during the implementation process and what specific problems occurred.

#### ***Evaluation***

There are four key issues that we focused on during the evaluation of the learning scenario in the seminar. Based on these key issues, an evaluation concept has been developed in

collaboration with the L3S Research Center<sup>2</sup> and the eLearning Service Abteilung<sup>3</sup> at the University of Hanover. The survey methods and instruments used will be presented later in this chapter and explained in more detail. During the survey, the tool was also theoretically classified by a property catalogue feature to investigate the existing and missing system functionalities. The results of this system analysis are given in the last part of this chapter.

### Research Questions

The first step taken was to survey the prior knowledge of the target group in the field of Web 2.0 and to evaluate their pre-existing media literacy. Therefore the first question was:

*1. Which skills in terms of usage of Web 2.0 technologies do the learners already possess?*

Since the usage of the tool to prepare the group presentations was voluntarily, it was interesting to observe how many groups decided to work with the tool, and how many against using it. Therefore the second question was:

*2. Will the learners use the tool for collaborative Web search?*

Main aspect of investigation in the survey is the usage of the learning scenario. Here it was necessary to evaluate how this learning scenario was adopted by the learners, i.e. how it was used for the preparation of the presentations. In addition to the temporal activity, the collaborative proceeding in the web search and the collaboration on the tool should be examined. The third issue is therefore:

*3. How do the learners use LearnWeb2.0 for collaborative web search – which functionalities are most intensely used?*

Main goal of the development of *LearnWeb2.0* as part of the TENCompetence project is the usage of the tool to support self-directed lifelong learning. In the course of the evaluation the tool should be used for collaborative learning in preparation for group presentations. Both application areas represent several challenges for the learners and ask for specific individual requirements and competences. Therefore, as a part of the evaluation, based on obtained data and with the aid of well-grounded theoretical assumptions, these necessary competences should be itemized and made viewable. The fourth question is therefore:

*4. Which prerequisites and competences are needed for collaborative self-directed learning with LearnWeb2.0?*

Subsequently, based on these examinations a research design and evaluation concept was developed to capture the various examination aspects.

### Evaluation approach

The research team decided for a survey using open questions as questioning technique. The four research questions stated in the previous section were used as point of origin. Due to the innovation of the examined tool and coherently with the learning scenario designed therefore, there was a lack of comparability with previous studies. This is why we abdicated on pre-theory-formulation of hypotheses. The research design was carried out as a descriptive, multi-

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<sup>2</sup> <http://www.l3s.de> (12.12.2009)

<sup>3</sup> <http://www.elsa.uni-hannover.de> (12.12.2009)

faceted and explorative survey, using different qualitative research methods, enriched by quantitative methods.

### ***Survey on Internet use***

In the first seminar session, we made a brief quantitative survey on habits of Internet use of the students. For this purpose, we prepared a questionnaire, in which the usage of various web services and social software of students should be gathered. On the one hand, the questionnaire was used to capture the Internet affinity and frequencies of using the different online services. On the other hand, it was possible to determine the prior knowledge of students in the various Web 2.0 services by evaluating the various variables that were assigned to the field of social software in the survey.

### ***Group interviews***

For the evaluation of the learning scenario, the research team decided to conduct a semi-structured guided interview to survey the individual groups. To capture the individual experiences and perspectives of the interviewees well, we used a prepared guideline with open and semi-open questions. Overall, each group, which consisted of two to three members each, was interrogated together one time. The point of time of this group-interrogation was in each case the day on which the group presented their elaboration of their topic; the sessions were scheduled after their presentations. The interview took place after the seminar.

### ***Questionnaire for non-users of the tool***

This questionnaire aimed at finding the motives that lead to denial using the tool in preparation for the group presentations. To increase the chance to get prompt feedback and feedback at all on the questionnaire, we used a short questionnaire with only two open questions.

### ***Teacher survey***

The fourth evaluation was a Teacher survey consisting of a short questionnaire with open and semi-structured questions. On one hand the questioning was intended to record the personal impressions of the teachers of the tool *LearnWeb2.0*, thus preserving a multi-dimensional assessment of the learning scenario. On the other hand, possible future application areas of the tool should be detected and for this the didactical frame requirements should be commented in more detail.

### ***Log file analysis***

In addition to these four methods an accompanying log file analysis was also carried out by the L3S Research Center, in which the online activities of users of *LearnWeb2.0* were recorded. The results of this analysis were used to substantiate the user statements in the interviews.

## **System Analysis**

In the context of a theoretical system analysis, *LearnWeb2.0* could be assigned to the software category "groupware", more specifically "collaboration systems." Groupware support workgroups engaged in a common task and which therefore need a common computer-based work environment. Considering *LearnWeb2.0* tool as groupware, we were able to describe the system in relation to the requirements of awareness, communication, coordination and collaboration support.

**1. Awareness support** means that the tool should provide features that ensure a degree of transparency about other group members. This means that it should be visible, who is online and which user is working with which tools. The tool *LearnWeb2.0* included no features to support awareness, until the time of evaluation.

**2. Communication support** stands for the support of both the direct and indirect communication. Because communication is central for all aspects of group interaction, the support functions and tools, for example a message or a chat system is especially important. At the time of evaluation, *LearnWeb2.0* offered no direct communication support between the groups; no message or chat system was integrated.

**3. Coordination support** means that the groupware system should provide various functions to support the planning and implementation of sub-activities within the group work. This includes the support of task distribution, decision-making and coordination processes. *LearnWeb2.0* had no functions that support coordination processes in groups at the time of evaluation.

**4. Collaboration support** stands for the collaboration on common tasks, common projects or common sharing of resources. *LearnWeb2.0* offered no functions to work together on a task, but the tool supported sharing and additionally also rating and commenting of knowledge resources. Therefore this function is a central element of the learning scenario. *LearnWeb2.0* can hereby also be classified as groupware in the category "collaborative systems".

According to the results of the system analysis, *LearnWeb2.0* as groupware supported mainly collaboration processes. Since the communication support system is limited, this can have a negative impact on the possibilities for online collaboration. Furthermore, the system does not offer awareness functions, resulting in lacking transparency about other users or group members. For example, it is not immediately obvious, which person has found which resource added it in the group.

### A.13.4 Evaluation results

The results of the survey by answering the research questions are presented as follows.

#### Answers to the research questions

##### 1. What skills in terms of using Web 2.0 technologies do the students already have?

We found that the students had very different - a few very little or even none - prior experience in using Web 2.0 technologies. The survey revealed that students use social networks almost every day, or at least weekly. The social network *StudiVZ* was most often mentioned. The students used the networks mainly to stay in contact with friends and fellow students. In the interviews, two of the respondents said that they use the network primarily for communication and information about university course-related issues.

Overall, the survey data shows that the students use various Web 2.0 applications rather passively in a consuming, but not contributing manner. They use *Wikipedia* to get term definitions and explanations, *Youtube* to watch videos and read in various blogs. Information about how to produce own contributions, for example in blogging or microblogging services like *Twitter* is unknown to over 60% of the surveyed students. Therefore the active use of Web 2.0 is limited to participation in the scope of social networks, or the occasional use of specific services like the *last.fm* music tool.

Particularly in the area of specific Web 2.0 functionalities such as social tagging, much of the participants (80%) stated, that they possess no previous experience yet.



## *2. Will the learners use the tool for collaborative Web search?*

Nine of the 15 participants (60%) decided to use of the tool and five against. One person did not participate in the evaluation. The learners used *LearnWeb2.0* two to ten times for web search for media resources while working at home. They used the tool also at the beginning of the evaluation period more than at the end, especially during and immediately after the exercises in the seminar. At this point it should be mentioned that particularly one student used the tool very frequently. The learners were asked why they used the tool not to a greater extent. They indicated predominantly a high investment of time, technical difficulties or troubles in tool navigation. The non-users responded in most cases that they did not have sufficient time to learn how to effectively work with the tool. Both users and non-users also mentioned that the tool was not used to the envisaged extent, because they preferred to continue with known and familiar practices for the preparation of presentations. They expected no additional benefit from changing their habitual work patterns.

## *3. How do the learners use LearnWeb2.0 for collaborative web search – which functionalities are most intensely used?*

Considering the kind of usage of the tool for preparing the group presentations, we can state that the tool was used for media research and collection as planned in the presented learning scenario. The students used search functionalities, commenting or rating to a lesser extent and they additionally used other search methods (e.g. Google). The found resources were mainly graphics, photos, videos and presentations. These were, if considered helpful, primarily used for enriching the presentation with media or for summarizing the topic. The learners mainly used texts, books and online documents, as recommended by the teachers, as base material.

Particularly in terms of collaboration during the group work with *LearnWeb2.0*, it can be stated that the possibilities outlined in the learning scenario were used only little or not at all. One reason for this is certainly the technical difficulties mentioned by the students. Those technical difficulties hindered the entry of comments or tags, respectively adding the resources in the resource group in some cases. This has happened due to the fact that the tool was still in the development process and some system functions were yet not in a stable state. The students criticized the waiting period until the software completed requests to all Web2.0 services and displayed the search results. They also mentioned several error prompts in the execution of various commands. During the evaluation it became also clear that some of the students had difficulties in tool navigation. In the group interviews and the teacher survey we could also note that the tool web interface is seen as generally confusing and that some features in the system lack in usability. At various points in the system, for example in the entry form for adding the resource, it was not immediately clear to the users what information would be explicitly needed at that point. The system analysis, which was conducted complementary to the survey, confirmed these reported shortcomings in usability.

Overall, it can be stated that the presented learning scenario was not adopted by the learners to the extent that was originally favoured by us. The presented system functions such as tagging, commenting or rating has been used very little. The online collaboration on *LearnWeb2.0* restrained solely to the individual works of learners and collaborative aggregation of resources in the group.

## *4. Which prerequisites and competences are needed for collaborative self-directed learning with LearnWeb2.0?*

The necessary prerequisites and competencies during the use of *LearnWeb2.0* come from different areas. Firstly, media literacy and competencies to deal with Web 2.0 technologies



should be mentioned, which were already considered in the context of the first research question.

Secondly, for the cooperative web search further competencies in the field of collaboration and coordination are essential. This means, for example, to distribute tasks in the group, in this case the search for the media resources, and to conduct decision making and approval processes within the group.

### Comparison of the evaluation results with the results of system analysis

In this section, we present our findings in comparing the evaluation results with the theoretical system analysis. For this purpose, the evaluation results are combined with the support requirements on collaboration systems listed in the system analysis.

From the interpretation of the results from the survey we found that the collaboration functionality of *LearnWeb2.0* was barely used by the students. Instead, the collaboration took place rather outside of the tool in offline face-to-face group meetings. The online collaboration on *LearnWeb2.0* limited only to the asynchronous, individual investigation of the group members and the collaborative aggregation of resources in the resource group in *GroupMe!*.

The design of the learning environment has a major impact on the support for learning processes in groups. Therefore, the *LearnWeb2.0* tool should provide several tools and features to support collaboration processes during the learning scenario. The system analysis of *LearnWeb2.0* pointed out that the tool supports collaboration processes in groups; here in such way that it supplies sharing and bundling web resources. The tool also offers various functions to describe the added resources (by tagging or commendation) and evaluate them (by rating). However, concerning communication support the tool shows severe shortcomings. Direct communication, for example through an integrated instant messaging system is not possible, yet. Indirect communication is only possible only by exchange of comments. Additionally, the system does not integrate awareness functions, limiting transparency about other users or group members. Search limited to the connected Web 2.0 services, because the set of services is fixed and not extendable by the user. Because of this, only resources from those sources can be found by the tool.

We think, the lack of communication support, as well as the lack of awareness support are the main reasons why the collaboration functions were barely used by the students. However, the limited collaboration on the tool has to be justified also with other determinants. Those determinants are the technical problems, the expenditure of time and difficulties in the usage of the tool (usability) as well as the fact that the students' existing skills in dealing with Web 2.0 technologies were limited.

### Impact Indicator Table

The evaluation results of the *LearnWeb 2.0* for Self-Directed Learning Business Demonstrator are presented in Table A.13.2 following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.13.2 Evaluation results of the *LearnWeb 2.0* for Self-Directed Learning**

Q	Answers
3	15 learners and 3 teachers
4	Elsa is part of the ZEW, the Competence Center for Continuous Education of the University of Hannover. The ZEW develops and provides seminars in the context of adult education for a wide range of institutes in Lower Saxony. Partners include the

	Architektenkammer Niedersachsen and the International Association for Consulting Competence e.V.
5	Individual people • People who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge.
6	Groups or Teams • Groups who want to share knowledge, skills and points of view to develop their insights and competencies in the field (e.g. research teams).
7	1) Organisations that want to disseminate and manage new and expert knowledge within the organisation / workplace. 2) Organisations that have to train personnel to learn or fulfill specific (new, complex or changing) job requirements.
8	3 teachers who prepared the initial contents of the collaborative LearnWeb 2.0 environment.
9	- staff installing the software: 1 person - expert: 1 person - researcher: 1 person
10	1 qualitative assessor (questionnaires, interviews), 1 quantitative assessor (log analysis). Both assessors were supervised, each by a senior.
11	3 teachers (who also functioned as authors)
12	Staff installing the software: 1 person The same person was also responsible for providing technical support
13	N/A
14	The participants follow a course on the use of new media in education. A class-based introduction to LearnWeb 2.0 will make the participants familiar with the functionalities of the software. The following weeks, the participants will use Learn-Web 2.0 for self-directed and collaborative learning, with a focus on competence development for new media.
15	The fifteen participants spent a total of 45 hours with LearnWeb 2.0
16	Knowledge of and the ability to work with (new) electronic media for teaching and learning (no competence profile assigned to it)
17	N/A
18	Adding resources, editing resources, searching resources, bookmarking resources, uploading resources, tagging resources, commenting, voting
19	N/A
20	N/A
21	N/A
22	18 people (excluding the facilitators and technical support). 15 people work in self-directed groups on competence development for new media. 3 people mentor the learners.
23	N/A
24	N/A
25	N/A
26	N/A
27	N/A
28	Self-directed collaborative search in preparation for a presentation on a self-selected theme. Mainly for collecting videos and pictures to illustrate their slides Google was used for text-based resources LW2.0 as support tool during face-to-face meetings Comments and ratings hardly used “I found some slides at Slideshare. From the slides I was directed to a Website where I could find the graphs I was looking for”

29	All 15 participants completed their assignments related to the seminar. 10 of them used LearnWeb 2.0 during their self-organized learning activities. 5 of them used other means, for example Google Web search and communication via email.
30	Despite usability issues and the occasional performance issues, the participants found the software helpful - in particular the search for Web 2.0 resources and the facilities for grouping and sharing. The teachers found LearnWeb 2.0 to be mainly a platform for knowledge management, not for learning. This implies that the teachers need to restructure their teaching and mentoring strategies accordingly. They would be willing to do so, provided the user interface will be improved.
31	10 participants appreciated the ideas behind LearnWeb 2.0. For 5 participants the usability issues of the current version of the software overshadowed the principles. A similar result was obtained from the interviews with the tutors.
32	The learners appreciated the functionality to search collaboratively in several Web 2.0 resources. In addition, the grouping functionality was greatly appreciated for bringing the material together and for sharing it with group members.
33	Receiving support for a non-trivial problem, Explore the community/learning network
34	1) instructed education and training: 2) self-organised learning (autonomous learner): 5) knowledge management (mandatory knowledge exchange):
35	N/A
36	2) Small organization (10-50 permanent staff):
37	• National Governmental Organisations: • Industry
38	elsa is part of the ZEW, the Competence Center for Continuous Education of the University of Hannover. The ZEW develops and provides seminars in the context of adult education for a wide range of institutes in Lower Saxony. Partners include the Architektenkammer Niedersachsen and the International Association for Consulting Competence e.V.
39	The pilot will provide the TENCompetence project with quantitative and qualitative data on the practical use of LearnWeb 2.0, including usability evaluation. Second, the Elsa will get acquainted with the LearnWeb 2.0 environment and develop practices for the deployment of the system in learning environments. Central research questions are: - Will the students use LearnWeb 2.0 for the self-directed learning? - Which features of LearnWeb 2.0 will be used? What are the most significant tools? - Use students the possibility for cooperative learning with Learn-Web 2.0?
40	1) improving a specific competence of its current job 2) improving a specific competence for a new job
41	N/A
42	• content provider: • Higher education: •
43	1) how many like to continue with the approach 2) how many won't like to continue with the approach 3) how many are undecided to continue with the approach  All three are undecided; on the one hand the tools need to be improved in terms of usability, on the other hand new learning practices need to be developed.
44	1) how many appreciate positively their working experience based on TENC 2) how many are neutral regarding their working experience based on TENC 3) how many rate the working experience based on TENC as negative  All three were neutral. It was mentioned that the use of LearnWeb 2.0 needs to be planned well in advance. Further, the communication facilities provided by the software need to be improved.
45	N.a.

46	<p>The elsa provides active elearning support for a wide range of educational activities, with different target groups – varying from students to adult education.</p> <p>If the pilot turns out to be successful, the elsa will be eager to include LearnWeb 2.0 in its portfolio of elearning instruments, to be offered to cooperating partners. The elsa has the technological background for deploying LearnWeb 2.0 on their own servers.</p> <ul style="list-style-type: none"> <li>- It is still a prototype and it ‘feels’ that way too</li> <li>- Main issue: user interface should be completely restyled and restructured</li> <li>- Potentially a tool that the elsa would use and recommend to clients</li> </ul>
47	See above
48	-
49	<p>The Elsa sees good uses of LearnWeb 2.0 in their offerings, in particular in optional courses and learning activities in which students have sufficient freedom for exploration and testing. However, first the usability of the tool needs to be greatly improved. Further, some time is needed for the transition.</p>
50	N/A
51	N/A
52	<p>Central questions for Elsa were:</p> <ul style="list-style-type: none"> <li>- Do the learners use LearnWeb 2.0 for the self-directed learning?</li> <li>- Which features of LearnWeb 2.0 are used? What are the most significant tools?</li> <li>- Do learners use the possibility for cooperative learning with Learn-Web 2.0?</li> </ul> <p>These questions have been answered.</p> <p>The collection of qualitative and quantitative data on the benefits of LearnWeb 2.0 in self-directed learning is an integral part of the business demonstrator. Log files will be analysed, group interviews will be held and business partners of the elsa will be asked to express their interest in LearnWeb 2.0, based on the results of the evaluation.</p> <p>The above-mentioned data has successfully been obtained, in far more detail than anticipated.</p>

### A.13.5 Discussion

From the findings of this business demonstrator five recommendations for the future use, but also for the development of *LearnWeb2.0* can be derived:

1. During the interviews with users and non-users, it became obvious that the use of *LearnWeb2.0* requires a certain investment of time for practicing. This should be primarily considered in the planning of the learning scenario. Because working with *LearnWeb2.0* especially requires competencies in dealing with Web 2.0 technologies, the user should gain these skills before using the tool.
2. The user should also have additional time during the working process to deal with the various tool functions intensively. In order for the learning scenario to yield the additional benefit for collaborative learning, it must also be assumed that there will be an active and participatory usage of various Web 2.0 services. This includes the willingness of Internet users to actively produce content and to contribute it to the network community. To support this process, assistance should be given to the learner. The learners should be encouraged and motivated indirectly, for example, by making the learning environment appealing and by external incentives, such as better approval of this form of learning. In particular, the teachers of the seminar wanted additional best-practice scenarios for the future use of *LearnWeb2.0* which they can use as an aid to prepare their own courses. Therefore different learning scenarios should be developed and made available public accessible as well for university as for further education.
3. Regarding the usefulness of the found resources it can be stated that the search results are often not satisfactory. The resources should be more relevant and applicable for the usage context. As mentioned, the students noted that not all found resources were useful. This raises the question whether the different available resources in the Web 2.0-services are sufficient for the particular learning context. For the knowledge investigation in a university context it can be presumed that in most cases only a few of the available resources, especially in form of texts, such as bookmarks, presentations and documents are relevant for the user. In order to improve the search results, the range of integrated Web 2.0 infrastructure should be as large as possible. For example, additional (locally popular) Web 2.0 services should be connected (e.g. the video sharing platform *MyVideo.de*, the social network *StudiVZ* and the social bookmarking service *Mister Wong* from Germany). The need for further research about the use of Web 2.0 technologies in collaborative learning scenarios is also apparent.
4. With regard to the systems analysis and as a result of the favourable conditions for collaborative learning processes, for future use the support functionality in the field of communication and awareness should be extended. For example, it would be helpful to integrate an instant messaging system to support the collaborative web search and communication process or to make the presence of group members in the system more transparent (e.g. "Who is working with which tool on what?").

Despite the technical difficulties encountered and limited online collaboration between students, the learners judged *LearnWeb2.0* as helpful for collaborative web search in preparation for group presentations. The learners perceived additional value, especially in functionalities like the concurrent search in various Web 2.0 services and the possibility of aggregating the found media resources in one place. They could imagine using the tool in the future. The idea of *LearnWeb2.0* can thus be seen as seminal, its evolution can provide an exciting tool for collaborative learning.

**A.13.6 Data collection instruments**

- Interviewleitfaden: Interview guide on the adoption of LearnWeb 2.0 practices
- Fragebogen: Questionnaire for non-users
- Umfrage: Questionnaire on internet experience

## Interviewleitfaden zur Nutzung von *LearnWeb2.0*

Zeitraum: 14.05. bis 02.07.2009, wöchentlich

Teilnehmer: Seminarteilnehmer des Seminars „Net-Generation – Medien verändern die Gesellschaft“

Ort: Leibniz Universität Hannover

Interviewer: Miriam Lerch

Form: Gruppen- und Einzelinterviews, halbanonym

Interviewzeitraum: max. 15 Minuten

### Allgemeine Angaben

Alter: \_\_\_\_\_

Geschlecht: ☐ männlich ☐ weiblich

Studiengang/ Semester: \_\_\_\_\_

*LearnWeb2.0*-Account: \_\_\_\_\_

### Leitfragen für das Interview:

Hast du schon Erfahrungen mit Web 2.0-Technologien gemacht und wenn ja, welche?

#### 1. Was habt ihr/ was hast du im *LearnWeb2.0* gemacht? Wofür habt ihr/ hast du *LearnWeb2.0* benutzt?

- Ziel der Medien-Recherche?

#### 2. Wie gestaltete sich die Kooperation in der Gruppe?

- Kooperatives Arbeiten (Situation) am PC: Verteilt (einzeln) oder zusammen?

- bei Gruppenarbeit: Wie viele Personen haben zusammen gearbeitet?

- Gab es eine Aufgabenverteilung in der Gruppe bei der Recherche?

- Wie könnte die Kooperation bewertet werden? (Beziehungen untereinander positiv, neutral oder negativ?)

- Zeitpunkt/ Häufigkeit der Kooperation?

#### 3. Welche Funktionen habt ihr/ hast du dazu genutzt?

- z.B. Bewertungsfunktion, Kommentarfunktion, Tagging

- Warum habt ihr/hast du die Funktion gewählt (Zweck)?

- Wie häufig habt ihr/hast du die Funktion benutzt?

#### 4. Welche Ressourcen habt ihr/ hast du gefunden bzw. waren besonders hilfreich/ nützlich?

- Warum waren die Ressourcen besonders nützlich?

#### 5. Wo traten Schwierigkeiten auf?

- Wie äußerten sich die Schwierigkeiten?

- Mögliche Gründe?

- Habt ihr/hast du einen Weg zur Beseitigung/Hilfe gefunden?

#### 6. Was habt ihr/ hast du vermisst?

- Warum habt ihr/ du es vermisst?

#### 7. War die Arbeit mit *LearnWeb2.0* insgesamt nützlich für euch/ dich?

- Wenn ja, warum?

- Wenn nein, warum nicht?

#### 8. Habt ihr/ hast du weitere Anmerkungen oder Hinweise?



## Fragebogen für Nicht-Nutzer

Zeitraum: 14.05. bis 02.07.2009, wöchentlich

Teilnehmer: Seminarteilnehmer des Seminars „NetGeneration – Medien verändern die Gesellschaft“

Ort: Leibniz Universität Hannover

Form: Fragebogen, halbanonym

## Allgemeine Angaben

Alter: \_\_\_\_\_

Geschlecht:    ☐ männlich                      ☐ weiblich

Studiengang/Semester: \_\_\_\_\_

LearnWeb2.0-Account: \_\_\_\_\_

**Frage:**

Aus welchen Gründen hast du *LearnWeb2.0* nicht benutzt?

Wie müsste *LearnWeb2.0* sein, damit du es benutzt?

Gib bitte mögliche Gründe an:

This image shows a blank sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## Umfrage zur Internetnutzungsaktivität (Fragebogen)

### Mein Leben in bzw. mit dem Netz – Nutzungshäufigkeit allgemeiner Internetdienste (Seite 1)

Gegenstand	Beispiele	Eher täglich	Eher wöchentlich	Eher Selten	Nur einmal ausprobiert	(noch) nie bzw. kenne ich nicht	Anmerkung/Erläuterung
E-Mail	Gmx, Web.de, Gmail						
Suchmaschinen (Internetsuche)	Google, Yahoo						
Studium	StudiVZ, Hausarbeiten.de						
Lernorganisation	Stud.IP, ILIAS						
Videos (anschen)	Youtube, MyVideo, Vimeo						
Nachschlagen/ Definitionen	Duden.de, Wikipedia						
Übersetzungen	Leo.de, Dict.cc						
Nachrichten	Spiegel online, Tagesschau online						
Menschen kennenlernen	Neu.de, Unikuschein.de, Parship.de						
Instant Messaging	ICQ, Skype, AIM, MSN						
Musik	Youtube, Dailymotion						
Kaufen/ Verkaufen	Ebay, Amazon						
Radio on demand	Last FM, Shoutcast, Radio live stream, Playlist						
Fotos	Flickr, Facebook						
Netzwerke	XING, Stayfriends, Wer kennt wen, StudiVZ, Facebook						
Video on demand	iTunes, Videoload, Maxdome, T- Home						
TV on demand	Zattoo						
Telefonieren	Skype, Jajah						
Wohnen/ Mieten	ImmobilienScout24.de, Studenten- weg.de, Wgzimmer.de						
Reisen	Bahn.de, Routenplaner.de, Google Maps, Google Earth, Opodo.de						
Wetter	Deutscherwetterdienst.de Wetter24.de						
Telefonnummern	Dastelefonbuch.de, Dasoertliche.de						

## Individualisierte Angebote (Seite 2)

Hier füllen Sie bitte immer die **Anmerkungsspalte** für jeweilige Nutzungen aus mit der konkreten Angabe der genutzten Angebote.

Gegenstand	Beispiele	Eher täglich	Eher wöchentlich	Eher selten	Nur einmal ausprobiert	(noch) nie bzw. kenne ich nicht	Anmerkung/ eigene Beispiele
Regionale Informationsportale	diverse, z.B. Hannover.de						
Foren/ Diskussionsforum	Themenbezogene Netzwerke, z.B. Schildkrötenforum						
Newsletter	Newsletter von diversen Organisationen						
RSS-Feeds	RSS-Feeds von diversen Organisationen, RSS Reader von Blogs von anderen Internet Angeboten						
Blogging	diverse Blogging-Systeme, z.B. Blogger, Wordpress, Blogspot						
Microblogging	diverse, z.B. Twitter, Tumblr, Frazz, Quaksen, Jaiku						
Blogs (lesen)	diverse, z.B. Wordpress, Blogspot, Blogger						
Online Banking	diverse Banken						
Kochrezepte	diverse, z.B. Chefkoch.de, daskochrezepte.de						
Informationssuche über Homepages	diverse, z.B. regionale: Öffnungszeiten/ Adressen/ Telefonnummern der Verwaltung, des Sportvereins usw.						
Literatursuche	diverse a) Bibliotheken b) online Datenbanken c) virtuell (KVK) oder reale Bibliothekverbünde						
Shopping direkt beim Hersteller	diverse, z.B. Esprit, Märklin, Lego						
Shopping bei Internet Händlern	diverse, z.B. Schulranzen.de, Sportscheck.de						
Zeitschriften/ Zeitschriften online lesen (bzw. deren Online Portale)	diverse, z.B. ZEIT, Süddeutsche, Spiegel, TAZ						
Sport	Diverse, z.B. Sport1.de, Tippliste Bundesliga						
Social Tagging	Diverse Tagging-unterstützende Systeme, z.B. Delicious, Linkin, linklisten, Mitgliedschaft in Gruppen diverse Services in Verbindung mit Handys (SMS), GPS zur Navigation						

## Appendix 14: UniGe Business Demonstrator

### A.14.1 Description of the business demonstrator

Table A.14.1 Description of the UniGe Business Demonstrator

UniGe: Laboratory on “Web Design” at DIST	
<p>Short description:</p> <p>This laboratory has the aim of teaching basic principles in web design activity from the point of view of both programmers and designers. The activity is composed of two phases: theoretical background and tools, and hands-on lab. The activity will be conducted in three steps: 1) Teachers will outline the activities of the laboratory in terms of competences needed for specific exercises (e.g., knowing UML). 2) Students will draw their own learning path on the basis of a self evaluation against the competences outlined by the teachers. 3) In the hands-on lab, the students will have to create a web version of the laboratory itself by producing new educational contents, based on their learning activity and with the objective of improving the learning experience. They will have to enrich the contents with new contribution (both original ones and links to resources that can be found on the Internet) and publish their work on a portal, a blog, a community or a social network. We will seek to demonstrate if the use of the TENCompetence tools can facilitate teachers and students in designing personalized learning paths. We will also try to understand if students can significantly improve their performance (and hence teachers too) by finding and publishing the right contents, evaluating them on the basis of a peer review.</p>	
Name and description of the Associate Partner	<p>Università di Genova - <i>Dipartimento di Informatica, Sistemistica e Telematica</i>, here on called “DIST”, founded in 1984, works at Information Engineering frontier: new methodologies are increased using integration between control and transmission systems, in multimedia environments at different levels of interaction with human operator.</p> <p>For a long time DIST has been inserted in international research community by several collaborations with remarkable foreign universities and institutions (as M.I.T., Univ. of California, Oxford University, INRIA, etc.) Great professionalism and availability of its technician and administrative staff is the base of complex technical management of such collaborations and of Department's financial and technological resources.</p> <p>DIST 's Educational sectors are Automatics, Bio-engineering, Computer Science, Operative Research and Telecommunications. In these sectors DIST is involved in international and national research projects, stimulated and financed by European Union (UE), by Ministry of Education, University and Research (MIUR) and by National Research Council (CNR). Application areas towards which DIST 's research is addressed include both information technologies and methodologies, as well as their use in different sectors of production and services, from industrial robotics to cultural and 'free time' activities. DIST then gives didactic support for computer science and other Masters inside and outside Engineering Faculty (i.e. Educational Sciences); it's also present in other activities of university formation, particularly in Medicine Faculty (qualification courses) and in Master of Environmental Engineering (teaching 'Modelling and Identification').</p> <p>Nowadays DIST has about fifty members (2/3 teachers and researchers, 1/3 technicians and administrative) and a yearly financial statement of over five</p>

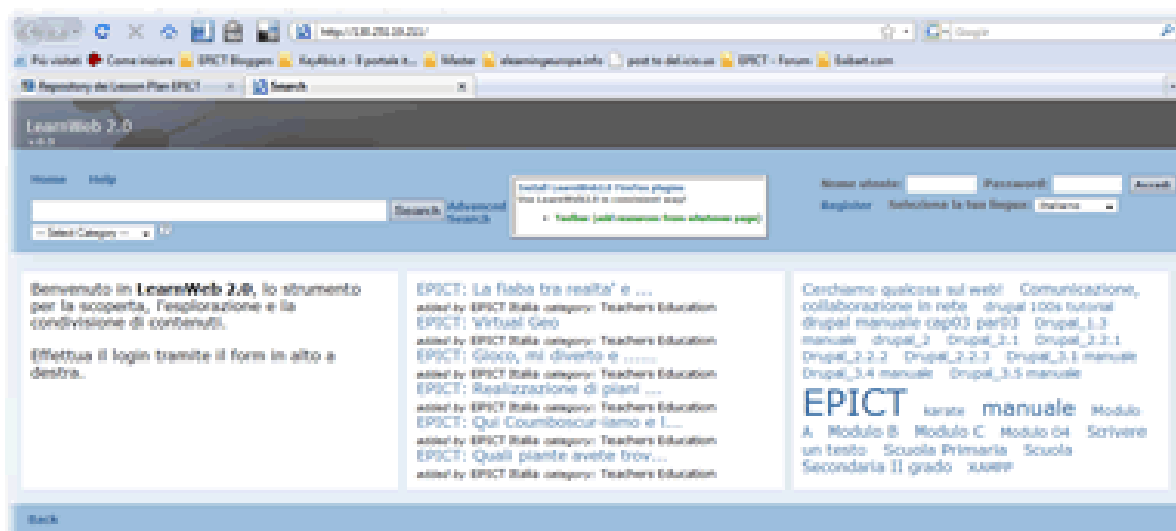
	<p>million euros (coming from agreements with European agencies of research): it's one of the most important and dynamic reality of University of Genoa.</p> <p>The facilitators are: Giovanni Adorni – responsible, Mauro Coccoli – assistant, Diego Brondo – assistant.</p> <p>This Business Demonstrator has been carried out in collaboration with Giunti Labs.</p>
User groups	<p>Team of students and their teachers/assistants: The students attend this laboratory to get a master level in "Science and technology of Information and communication" and they have a non-homogeneous cultural background. We can identify two groups with different characteristics and different knowledge of programming languages and techniques. First group has knowledge in communication and a lack in technology while the second one is complementary. Thus they need personalized learning paths and the possibility of studying better the parts they are weak in.</p>
Setting	<p>University structures and/or students' home</p>
Roles	<p>Final users of TENC tools: teachers, students, assistants for exercises. Content developer + Content provider + Tutor/advisor + Assessor: 2 Tutor/advisor + Preparation and evaluation: 2 Tutor/advisor: 3 Learners: 15</p>
Tooling	<p>PCM: support teachers in defining course structure PDP: support students in finding competencies gap for exercises LearnWeb: stimulate teachers/students/assistants in finding/sharing useful learning resources</p>
Aim and expectation of the demonstrator	<p>Experiment the TENC tools and evaluate possible benefits</p> <ul style="list-style-type: none"> <li>- instructed education and training</li> <li>- self-organized learning</li> <li>- knowledge management (mandatory knowledge exchange)</li> </ul>
Context	<p>Introduce the competency description in the course structure, support students in development of exercises.</p>
Business model / case shown in the demonstrator	<p>Process improvement. The test-bed is a virtual classroom of master students. We will evaluate if the learning process can be improved through the TENCompetence system and tools as well as if the work of teachers can be facilitated. Students should empower their communication and be able to find resources to share for the individual or collaborative activity that they have to do as an integration to the "text-books" suggested by the teachers. Self improvement via informal learning should be at the basis of distance learning activity.</p>
Other business / valorization opportunities	<p>Quality of Service. Better results are expected in terms of performance of both the students and the teachers involved in this Laboratory. Good marks in evaluation means a good service for the users that can achieve better results with less effort. From the teachers' point of view, tools supporting the profiling of students and facilitating can help to give ad hoc services hence enhancing the quality.</p>
Relevance of TENCompetence for the demonstrator context	<p>Challenge to use TENC tools in other contexts outside the university courses, e.g. International Federation of Sports Physiotherapy (IFSP) and project EPICT - European Pedagogical ICT License.</p>

Competence profiles and competences involved	Competence and profiles will be developed by teachers with PCM. Probably the profile will be "Web Designer" and the competencies will be: "HTML language", "XHTML language", "Cascade Style Sheets", "Javascript", "professional web designers", "Usability", "Accessibility", "UML", "Software engineering", "Knowledge Management Systems"
Training needs	PCM, PDP, LearnWeb. Demos already done by Giunti Labs, Videos from WP9 already given.
Implementation plan	Start in April 2009; use the tools during spring 2009.
Evaluation plan	Compiling evaluation forms provided by WP4. Giunti Labs will perform a detailed evaluation of the demonstration carried out by the Associate Partner.
Could you mention one or more results with which you would consider your demonstrator a success?	At the end of the experimentation, a user manual for the Drupal CMS has been released as result of the collaborative work of students.  Also, the use of LearnWeb allowed to realize a dynamic and social database of lessons plan within the EPICIT Italy initiative. Teachers allowed to enter such database may find and share didactic resources with multiple research keys. Learn Web represents a powerful tool in order to perform precise and careful researches.

### A.14.2 Implementation

Learners accessed the course by evaluating their competences through the PCM-PDP system. Next, they developed their missing skills by studying the Drupal CMS and by collaborating in building a users' manual.

Teachers within the EPCIT courses developed a number of lesson plans in order to gain competences in design innovative learning scenarios based on the use of ICT in class. Such lesson plans are stored in the EPIT e-learning platform, and LearnWeb has been used as a researchers engine (see Figure A.14.1): we stored in LearnWeb an abstract of the lesson plan and we tagged them in order to give a description of the resources aimed to allow a research for "title" and for "tag". Teachers that use LearnWeb may find the lessons plan as well as comments leaved by who previously saw that resource. This results in a more complete searching experience.



**Figure A.14.1. Screenshot of the LearnWeb2.0 tool used in the UNIGE demonstrator**

### **A.14.3 Evaluation methodology**

The LearnWeb experimentation was conducted with two principal aims: validate the functionalities of the tool and validate the potentiality of a dynamic and social repository of documents.

During the production of the materials, a qualitative evaluation of LearnWeb functionalities has been carried on; we are still performing (at the date we're writing this document) the evaluation of the use of LearnWeb as a social database for another case-study that is the evaluation of the usefulness of LearnWeb as a social database of lessons plan. To this aim a multiple choice questionnaire has been designed, aimed to evaluate:

- 1) which kind of search strategy was the preferred: the free search, the "per tag" search or the "latest insert resource" search;
- 2) the use and usefulness of the social tools: how much the users used the social tools:
  - a. adding tags, comments, evaluations or
  - b. being influenced in the selection of a resource by the presence of comments and positive/negative evaluations

### **A.14.4 Evaluation results**

The evaluation results of the UniGe Business Demonstrator are presented in Table A.14.2 following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.14.2 Evaluation results of the ALTRAN Business Demonstrator**

Q	Answers
3	55
4	1
5	People who need a formal degree, diploma or certificate at any time in their life. The experimentation is included within a University course.
6	A group who is encouraged to share knowledge, skills and points of view to develop their insights and competences in the field.
7	Organizations that have to train personnel to learn or fulfill specific (new, complex or changing) learning requirements.
8	Activity is focused on the use of LearnWeb2.0
9	3
10	3 (overlapping the participants)
11	3 (overlapping the participants)
12	3 (overlapping the participants)
13	None
14	Both home and educational institution laboratory
15	120 (estimated)
16	1: the competence profile is corresponding to the European Pedagogical ICT License (EPICT)
17	5: ICT in teaching and learning; the computer; search and communication using the internet; word processing and writing process; ICT and school innovation



18	2
19	Activity is focused on the use of LearnWeb2.0
20	Activity is focused on the use of LearnWeb2.0
21	Activity is focused on the use of LearnWeb2.0
22	55 - people used LearnWeb2.0 as a repository for "Lesson Plans" they developed while attending the EPICT course. People can compare own experiences and enrich the amount of teaching materials to use in their own classrooms. People share experience and can have interaction through the social networking tools which is a fundamental aspect of the EPICT project since it is deployed as a distance learning course.
23	Activity is focused on the use of LearnWeb2.0
24	Activity is focused on the use of LearnWeb2.0
25	Activity is focused on the use of LearnWeb2.0
26	Activity is focused on the use of LearnWeb2.0
27	Activity is focused on the use of LearnWeb2.0
28	N/A, still under investigation
29	N/A
30	N/A because final results are expected in next weeks
31	<p>Please provide an answer:</p> <p>1) how many appreciate positively the learning experience based on TENC</p> <p>2) how many are neutral regarding the learning experience based on TENC</p> <p>3) how many rate the learning experience based on TENC as negative</p> <p>N/A because final results are expected in next weeks</p>
32	N/A
33	<p>Please provide an answer:</p> <p>1) how many have progressed improving a specific competence of its current job</p> <p>2) how many have progressed improving a specific competence for a new job</p> <p>3) how many have explored the community / learning network</p> <p>4) how many have progressed keeping up-to-date</p> <p>5) how many have progressed assessing their competences</p> <p>6) how many have progressed reflecting on their competences</p> <p>7) how may have progressed receiving support for some non-trivial problem</p> <p>all the users exploited point 3)</p>
34	<p>Please provide an answer:</p> <p>1) instructed education and training:</p> <p>2) self-organised learning (autonomous learner):</p> <p>3) human resource development (like self-organised learning but with pre-defined goals and pre-selected learning offers):</p> <p>4) community of practice (voluntary knowledge exchange):</p> <p>5) knowledge management (mandatory knowledge exchange):</p> <p>all the users exploited point 4)</p>
35	N/A
36	<p>Please provide an answer: Size of organizations involved in the demonstrator (if only a department, unit and working group participates in the pilot, provide the size of the unit)</p> <p>1) Micro organization (&lt; 10 permanent staff): 2) Small organization (10-50 permanent staff): 3) Medium organization (50-250 permanent staff): 4) Mid sized organization (250-1500 permanent staff): 5) Large organization (&gt; 1500 permanent staff):</p> <p>2)</p>
37	<p>Please provide an answer: Type of organizations involved in the demonstrator. • Local Governmental Organisations: • Regional Governmental Organisations: • National Governmental Organisations: • International Governmental Organisations: • Trade</p>

	Unions: • Associations • Enterprises • Industry  N/A
38	Educational institution - University - 22 people involved
39	Experimenting on e-learning and collaborative work
40	Please provide an answer, use cases covered by the pilot in the organization: 1) improving a specific competence of its current job 2) improving a specific competence for a new job 3) explored the community / leaning network 4) keeping up-to-date 5) assessing their competences 6) reflecting on their competences 7) receiving support for some non-trivial problem  3, 4, 5, 6, and 7
41	N/A
42	Please provide an answer, Categories of educational facilitators, • content provider: • continuing vocational education and training (cVET): • Higher education: • Vocational School (initial VET): • Other:  Categories of educational facilitators
43	Please provide an answer, From the authors, assessors, facilitators, and the rest of the roles (excluding the learners), how many of them would like to continue with the TENCompetence approach 1) how many like to continue with the approach 2) how many won't like to continue with the approach 3) how many are undecided to continue with the approach  N/A because final results are expected in next weeks
44	Please provide an answer, From the authors, assessors, facilitators, and the rest of the roles (excluding the learners), how many participants appreciate positively their experience based on TENCompetence, how many are neutral in their appreciation and how many rate it as negative 1) how many appreciate positively their working experience based on TENC 2) how many are neutral regarding their working experience based on TENC 3) how many rate the working experience based on TENC as negative  N/A because final results are expected in next weeks
45	N/A
46	Please provide an answer: Business model(s) or cases shown in the demonstrator, - internal training; - Knowledge management; -external training; - community of practice (across organisations); - self organised learning; - on-the-job training; - certification; - assessment; - re-training; - further education, add a different one if applies  community of practice across organization self-organized learning
47	Please provide an answer: Business model(s) or case(s) potentially possible with the TENCompetence ideas though not demonstrated
48	Please provide an answer: Estimation of resources (external to TENCompetence project) invested in carrying out the demonstrator  two months
49	Please provide an answer: Plans to use TENCompetence beyond Nov. 2009

	Yes
50	UniGe has install the TENCompetence system in their own server
51	UniGe has customize the TENCompetence tools and is currently improving the tagging and authentication system
52	N/A because final results are expected in next weeks

### A.14.5 Discussion

LearnWeb allowed EPICT users to find lesson plans and generic resources on specific topics both from the EPICT Italian database of lesson plans, and from other places on the web. This features enriched the activities of teachers that used LearnWeb.

The chance to use the social tools, like the evaluation tool, the comment tools and the possibility to add tags to the resources found, challenged users not only to be passive actors of the search process, but to become active and to participate to the activity of storage of the resources. The individual comments and evaluations become precious elements of choice of a particular resource: a well evaluated lesson plan is chosen by users; a good comment motivates to read the lesson plan.

What results is that LearnWeb allow to have both a general vision of the database of lesson plan (with the “search per tag” function), and also a cross sectional vision of the resources stored (with the free search function).

What has been noticed is the need of a continuous presence of the technical staff in order to solve the technical problems that may occur in the functioning of the search engine.

### A.14.6 Data collection instruments

Tests or questionnaires that may have been used, when applies... [UniGe-Giunti]

#### Qual è stata la tua prima impressione di LearnWeb 2.0?

- ☒ Positiva
- ☐ Indifferente
- ☐ Negativa

#### 2. Come hai realizzato la prima ricerca fatta in LearnWeb 2.0?

- ☐ Inserendo una parola chiave e cliccando sul bottone Search
- ☐ Cliccando su una parola chiave proposta nel tag cloud
- ☐ Cliccando sul titolo di un lesson plan che si trovava nell’elenco delle ultime risorse inserite

**3. Una volta recuperata una risorsa, hai:**

- ☐ Inserito un commento
- ☐ Proposto nuovi tags
- ☐ Presentato un tuo giudizio di valutazione
- ☐ Non ho fatto nulla

**4. Nella selezione e recupero delle risorse, ti sei fatto condizionare:**

- ☐ Dai commenti proposti da altri utenti
- ☐ Dai giudizi di valutazione dati da altri utenti
- ☐ Da niente

**5. Al fine del recupero delle risorse, quanto reputi importante la possibilità di leggere un commento proposto da un altro utente?**

- ☐ Moltissimo
- ☐ Molto
- ☐ Abbastanza
- ☐ Poco
- ☐ Per niente

**6. Al fine del recupero delle risorse, quanto reputi importante la possibilità di leggere diversi tags definiti da altri utenti?**

- ☐ Moltissimo
- ☐ Molto
- ☐ Abbastanza
- ☐ Poco
- ☐ Per niente

**7. Al fine del recupero delle risorse, quanto reputi importante la possibilità di leggere un giudizio di valutazione definito da un altro utente?**

- ☐ Moltissimo
- ☐ Molto
- ☐ Abbastanza
- ☐ Poco
- ☐ Per niente

8. Qual è un tuo giudizio complessivo rispetto all'uso di LearnWeb 2.0 per la ricerca e il recupero di risorse?

- ☐ Ottimo
- ☐ Buono
- ☐ Sufficiente
- ☐ Insufficiente

9. Cosa pensi sia utile migliorare:

- ☐ Niente
- ☐ Impostazione grafica e layout
- ☐ Menu di navigazione
- ☐ Organizzazione delle risorse
- ☐ Gestione di download delle risorse
- ☐ Inserimento dei tags
- ☐ Inserimento dei giudizi di valutazione
- ☐ Altro...

10. Potresti motivare la tua risposta data alla domanda precedente:



11. Userai LearnWeb in futuro?

- ☐ Sì
- ☐ Forse
- ☐ No

## Appendix 15: Macmillan Cancer Support Business Demonstrator

### A.15.1 Description of the business demonstrator

**Table A.15.1 Description of the Macmillan Cancer Support Business Demonstrator**

<b>Macmillan Cancer Support Business Demonstrator</b>	
Short description: The charity Macmillan Cancer Support needed to develop a tool for guiding volunteers who wished to support the charity. The guidance included initial alignment with roles and subsequent analysis of competency to fulfil selected roles with a view to recommending courses of learning to supplement the volunteers existing potential.	
Name and description of the Associate Partner	Core Education UK was contracted to fulfil the task set by Macmillan, a major cancer charity. Macmillan improves the lives of people affected by cancer. It provides practical, medical and financial support and pushes for better cancer care. Core Education UK is a not-for-profit research, evaluation and development consultancy formed in January 2007. Core UK has ambitions to develop learning with technology both by developing new forms of organisation in education and by exploiting the new opportunities offered by new tools - computer programs, communication networks and technologies. It has five experienced personnel who have been engaged in a range of contracts over the last three years with companies, public bodies, government agencies and charities. This demonstrator has been supported by the University of Bolton.
User groups	SME Development consultants. Charity professionals. End users anticipated would be people affected by cancer, either as patients or relatives of patients who wish to volunteer to help Macmillan.
Setting	Development consultancy to improve charitable voluntary work.
Roles	Core Education UK as consultant, Macmillan Cancer Support as client, Logica as technical support
Tooling	The TENCompetence Personal Competence manager with certain portlets activated
Aim and expectation of the demonstrator	To develop the competency framework associated with this task and perfect the language of the roles, competency statements and levels.
Context	Development consultancy for the voluntary sector.
Business model / case shown in the demonstrator	The tools allowed the development of the roles, competency statements and levels in order for the consultant (Core Education) to advise and dialogue with the client (Macmillan) in order to perfect the framework through a realised system and iterative refinement. This allowed a greater engagement between users & developers in the design and the involvement of voluntary work experts in Macmillan to offer advice, despite their relative ignorance of competency framework thinking.
Business / valorization opportunities	The demonstration of a polished user front end and the administrative editing possibilities make this an effective design tool.
Relevance of TENCompetence for the demonstrator context	The conceptual models perfected and realised in the software are made available to practitioners inexperienced in the detailed thinking of competency frameworks.
Competence profiles and	See row 17 of the second table

competences involved	
Training needs	These are little, the software is intuitive and offers support as it used.
Implementation plan	To use the tool to model the competency framework needed and to test it with Macmillan experts.
Evaluation plan	To interview the client's manager and to record notes of observations by the contractor.
Could you mention one or more results with which you would consider your demonstrator a success?	The client was very satisfied with the manner in which the design could be engaged with and tested and the questions and issues raised by the use of the software tool.

### **A.15.2 Implementation**

On Monday 14<sup>th</sup> September 2009, the consultant (Core Education) joined a brainstorm meeting with the client's (Macmillan) staff to consider the alternative voluntary roles that people affected by cancer might adopt. There was much creative discussion about how they might discover their 'alignment' with such roles (the equivalent of career advice perhaps). The meeting continued after lunch to list the competencies needed for each role and which were common to all roles or which subset of roles. Subsequently the consultant and client manager met and perfected the lists based on notes taken and circulation of revised documents. Then the data was used in the software to complete a competency framework for this task. A new concept – that of level of role – was encountered and led to further discussion between consultant and client and the identification of 'competent' and 'experienced' levels for each role. Finally the outcomes were mapped to training opportunities that Macmillan had already identified.

### **A.15.3 Evaluation methodology**

The effectiveness of the demonstrator was evaluated by interview with the client's manager and observations made by the contractor.

### **A.15.4 Evaluation results**

The evaluation results of the Bolton Business Demonstrator are presented in the table following the structure of the impact indicators data collection instrument (see Appendix 1).

**Table A.15.2 Evaluation results of the Bolton Business Demonstrator**

Q	
3	12 Macmillan staff
4	3 including Logica
5	1) People with a need to develop some general or specific competences to perform their job better, to solve any type of problems or to learn to cope with specific situations. Also those with a need to improve their career, or a desire to change their jobs.
6	4) Groups in companies who want to (or must) develop competences in order to perform better.
7	2) Organisations that have to train personnel to learn or fulfil specific (new, complex or changing) job requirements.



8	2 using PCM (Core Education and Macmillan)
9	1 (Logica)
10	1 (Core Education)
11	1 (Core education)
12	1 (Logica)
13	10 experts in voluntary work / cancer advocacy from Macmillan
14	workplace
15	40 hours
16	4 profiles – Personal Advocate, Cancer Advocate, Activist, Champion
17	<p>29</p> <p>Dealing with emotion</p> <p>Communication</p> <p>Coaching</p> <p>Knowledge of relevant services and networks</p> <p>Appraising other's needs</p> <p>Identifying appropriate services or resources to meet needs</p> <p>Understanding your own support needs</p> <p>Ability to understand different audiences needs</p> <p>Presentation, public speaking to a range of audiences, responding to challenge, media training</p> <p>Group facilitation skills</p> <p>Training skills</p> <p>Education skills</p> <p>identify key messages and keeping on message</p> <p>identifying and gathering relevant evidence</p> <p>understand national issues, bigger picture &amp; current affairs</p> <p>encourage others to be involved</p> <p>Representing an inquiring user's point of view</p> <p>Understanding and engaging with different communities</p> <p>Understand quality measures, apply national frameworks &amp; standards</p> <p>Challenging status quo</p> <p>understanding your role and staying in it, complementing others in groups and teams</p> <p>understanding and maintaining boundaries (around confidentiality etc)</p> <p>being able to understand relevant documents, work online, search, reference</p> <p>drawing appropriately on any/ own cancer experience</p> <p>emotionally ready</p> <p>authoritative, credible, confident, articulate and assertive</p> <p>enjoyment, facility, ease, listening, observation individually and in groups (people skills)</p> <p>- emotional</p> <p>intelligence</p> <p>understand how services work</p> <p>encourage, inspire, inform and enforce Macmillan Cancer Support staff to use Cancer Voices in a useful and creative way beyond box-ticking</p>
18	1
19	2
20	0
21	0
22	0
23	0
24	0
25	0
26	1 – to develop content to contextualize the competencies and populate with participants to explore the framework

27	0
28	12 – how to design a competency framework and what issues for data quality and linguistic content and how they can be improved.
29	0
30	1) 2 would continue the approach 2) 0 wouldn't 3) 10 – haven't been asked
31	1) 2 appreciate positively the learning experience based on TENC 2) 0 – haven't been asked 3) 0 – haven't been asked
32	N/A
33	1) 12 have progressed improving a specific competence of its current job 2) 0 have progressed improving a specific competence for a new job  3) 0 have explored the community / learning network 4) 0 have progressed keeping up-to-date 5) 0 have progressed assessing their competences 6) 12 have progressed reflecting on their competences 7) 0 have progressed receiving support for some non-trivial problem
34	1) 0 - instructed education and training: 2) 0 - self-organised learning (autonomous learner): 3) 12 - human resource development (like self-organised learning but with pre-defined goals and pre-selected learning offers): 4) 0 - community of practice (voluntary knowledge exchange): 5) 0 - knowledge management (mandatory knowledge exchange):
35	1) 0 - participants have experienced a positive change in their functioning (new job, promotion in their current job, etc.) 2) 0 - participants have experienced a positive effect in their personal environment (with family, in hobbies, etc.) 3) 12 - participants have experienced any other positive effect - through clearer understanding of competency frameworks
36	1) Micro organization (< 10 permanent staff): Core Education UK 4) Mid sized organization (250-1500 permanent staff): Macmillan Cancer Support
37	SME consultancy in learning technology – Core Education UK Large national charity – Macmillan Cancer Support
38	In the case of Macmillan Cancer Support – the Learning Technology and Inclusion teams.
39	To develop a competency framework
40	7) receiving support for some non-trivial problem - in this case the design of a new competency framework
41	The consultant and client were starting on fresh territory to consider the advice to be offered to charity volunteers and how this can be framed using online technology. In each case it was their job to undertake such innovation.
42	Lifelong informal learning
43	1) 2 - would like to continue with the approach 2) 0 - won't like to continue with the approach 3) 10 - are undecided to continue with the approach, and haven't been asked
44	1) 2 - appreciate positively their working experience based on TENC

	2) 10 - how many are neutral regarding their working experience based on TENC and haven't been asked 3) 0 - how many rate the working experience based on TENC as negative
45	It has informed and reassured the provider that the competency framework that has been developed is of quality.
46	Consultancy and development
47	Direct use, but only if embeddable in existing Virtual Learning Environment, Moodle.
48	40 hours
49	To continue design & development process, trial with end users
50	Not as yet but possible
51	Not as yet but possible
52	Yes

### **A.15.5 Discussion**

The primary value of the tool in this case was to aid the effective design of a framework of roles and competencies by implementing and testing with iterative refinement. The use of a real tool aids design decisions and focuses effort to improve data quality and linguistic elements.

### **A.15.6 Data collection instruments**

Interview and observation notes.